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<p>(54) Title: PRODUCT DISPENSING APPARATUS AND GAMING SYSTEM</p> <p>(57) Abstract</p> <p>In a telephone card vending machine, the purchaser places a bill in the vending machine. On acceptance of the bill, the machine displays the credits available and that a game may be played. The purchaser may then the play button and the machine generates an animated display which results in an arrangement of symbols indicative of a win level or a loss. In the case of a win the purchaser receives a calling card with the specified number of minutes purchased. In addition, the purchaser will receive a coupon for a prize redeemable for cash in specified denominations or in some cases goods. This may be redeemed at the site of the purchase or at other participating locations. Pay out of prizes is predetermined over 5000 plays based on a random distribution. The prizes are then paid out in sequence over the next 5000 plays. On playing the last of the 5000 plays the pay outs for the next 5000 plays are again determined at random and the prizes again paid out in sequence. The machine includes a call home feature which permits dial up of a central system server over a modem connection to upload and download information. This information includes whether the machine requires more credits from the telephone carrier allocating the credits for use on the machine, and administrative information such as test information and financial results, which is uploaded to the remote server and credits for use on the machine, software updates and security information which is downloaded from or uploaded to the remote server.</p>		

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PRODUCT DISPENSING APPARATUS AND GAMING SYSTEM

BACKGROUND OF THE INVENTION

Field of the Invention

This invention relates to dispensing machines for dispensing printed products such as tickets, calling cards and other paper products as well as those machines which dispense non-paper products. More specifically this inventions relates to machines, which dispense products and provide an opportunity to win prizes in addition to the product purchased. In every case the purchased product is dispensed from the vending machine.

Description of the Background

The art is replete with vending machines which vend a product, The art also is replete with various gaming machines such as is typified by U.S. Patent 5,033,744 to Bridgeman. In addition, it is known that a vending machine with gaming features is produced by Movie Hut, Inc., which is admitted prior art in U.S. Patent 4,440,312 issued November 25, 1981, which displays an animated graphic of a chicken laying an egg. When a prize is to be awarded the chicken lays an unbroken egg and when no prize is awarded the chicken lays a broken egg. If the egg is unbroken, a prize is dispensed. In either case the product purchased is vended. . Also referenced as prior art in U.S. Patent 4,440,312 is Lucky Eggs vending Machine of Bulk Mfg. Co., Inc.

Most vending machines are intended to be in a secure environment and operate in a stand alone mode. However, if a machine is stolen, then it may still be operated at an unknown site to vend product and prizes due to the stand alone nature of the device to the detriment of the owner of the machine.

The instant invention incorporates the stand alone feature of the related art and also permits a game to be played by the purchaser of product. It also provides security features to prevent tampering with the machine or theft from the machine. In addition, the machine has a theft deterrent from theft of the entire machine and removal from the authorized location which includes calling the remote server periodically which reveals its location.

SUMMARY OF THE INVENTION

The instant invention is a vending machine which has a programmable controller or computer system housed therein. Connected to the computer is a display monitor. This display monitor may be a typical display screen for outputting a display and may include a touch screen which may be used for input. Also connected to the computer is a bill reader which will accept and identify the denominations of bills inserted therein, a printer which prints out calling card tickets, and a redeemable coupon for receiving cash awards. The vending machine also has a play button and an optional alternate button which can be used to play the machine, or perform administrative functions. Finally, the machine also has a panel display which may be used in a marquee or static mode in place of or supplemental to the display monitor to attract customers and supply informational messages. A sound system is included which plays music or audio messages for attracting customers and enhancing the play of the game.

To purchase a telephone card, the purchaser places a bill in the vending machine. On acceptance of the bill, the machine displays the credits available and that a game may be played. The purchaser may then press the play button and the machine generates an animated display which results in an arrangement of symbols indicative of a win level or a loss. In the case of a win the purchaser receives a calling card with the specified number of minutes purchased. In addition, the purchaser will receive a coupon for a prize redeemable for cash in specified denominations or in some cases goods. This may be redeemed at the site of the purchase or at other participating locations. Pay out of prizes is predetermined over 5000 plays based on a random distribution. The prizes are then paid out in sequence over the next 5000 plays. On playing the last of the 5000 plays the pay outs for the next 5000 plays is again determined at random and the prizes again paid out in sequence.

The machine has a call home feature which permits it to dial a central system server over a modem connection to upload and down load information. This information includes whether the machine requires more credits from the telephone carrier allocating the credits for use on the machine, and administrative information such as test information and financial results, which is uploaded to the remote server and credits for use on the machine, software updates and security information which is downloaded from the remote server. A number of machines may be located at the same site and each daisy chained to speak to the server in serial fashion as well as each on a stand alone basis.

This permits the central server servicing a plurality of such machines to download credits to the machines which are the most active instead of uniformly supplying a large number of credits dedicated to each machine whether used or not. This minimizing the number of total

credits which must be secured and tracked for the entire system. In addition, such communication permits the remote server to verify the then current telephone number of the location from which the machine is calling.

Security information includes information which would cause the machine to cease operation, or take other protective measures. This information could include, for example, that the machine has been stolen or a virus introduced or other tampering has been detected, in which case the machine will cease operation.

The machine includes an administrative feature which permits the examination of the machine on site, the evaluation of the activity thereof. The machine can be serviced, currency removed, additional print cards inserted as required. A maintenance feature permits diagnostics to be run on the machine to determine the operation of all components.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a pictorial view of the machine

Figure 2 is a block diagram of the components of the machine and the remote server.

Figures 3A to 3AW are a detailed flow chart of the various functions of the machine.

Figure 4 is a view of bill indicia.

Figure 5 is a blown up view of a \$5 bill indicia.

Figure 6 is a block diagram of the distribution table of pay out amounts.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Figure 1 shows the vending machine 1 with a housing 2, in which a video screen or monitor 3 is mounted. Immediately above the monitor 3 is a panel display 4 which can display messages either as one time display or in a marquee format, a play button 5 is shown on an extended shelf 6. Below the shelf 6 is a bill acceptor 7 which is used for accepting various denominations of bills and provides a code for identifying the value of the bill. The vending machine 1 is also provided with a programmable controller or computer 10, not shown in Figure 1, which responds to various inputs and controls the operation of the machine 1. Also not shown in Figure 1 is a printer 11, which is used to print out a calling card purchased with the designated time increments and a coupon for any prize awarded. The coupon may be printed integral with the calling card.

A tray 9 is provided to receive the printed card which is printed by the printer 11 and which drops into the tray 9 for retrieval.

Also shown in Figure 1 is an alternate button 8 which may be substituted for the play button 5 if the play button 5 fails. Or alternate button 8 may simply remain as an active play button providing access to both right and left handed persons.

Shown on the display 3 are a plurality of indicia 25 which are used to indicate a win or a loss. Simulated rotation of gaming wheels is displayed with a win determined by line up of similar indicia 25.

The blocked areas 27, 28 and 29 on the screen are used for status and instructional messages.

If the screen 3 is also a touch screen then reserved areas can be used for input by displaying an appropriate symbol such as start, hold, etc.

Figure 4 shows a six indicia 25 in a column which are selected for simulated rotations in sequence. Each column of indicia would have a different sequence for realism. While six are shown on this system may have a larger number of indicia in a column particularly if more win directions for line up are desired.

Figure 5 shows an indicia for a 5 dollar win. If for example three 5 dollar bills line up then a \$5 prize is awarded.

Figure 6 shows the distribution table for prizes. Out of a sequence of 5000 plays, there are 600 one dollar wins designated 300 two dollar wins designated 80 five dollar wins designated, 20 ten dollar wins designated and 10 twenty dollar wins designated.

These win designations are spread randomly over 5000 plays which are processed in sequence as described above.

Figure 2 shows a block diagram of the entire system. Central to the system is a PC computer system 10, which is provided with 16 megabytes of memory, some of which is ROM Memory 21 for non-volatile storage for boot up. Non-volatile EEPROM Memory 16 is used to store the system code which may be electrical configured. RAM memory 20 is used for volatile storage during operation of the system. As technology advances other kinds of memory devices may be used or substitute for RAM, ROM, EPROM, or EEPROM devices, as known to those skilled in the art. The computer 10 is also provided with a monitor 3 for display, a CD-ROM Drive 13 for removable memory, a sound system 12 to provide sound to add attractive music and sounds to game play and attraction mode, a printer 11 is provided to printout the calling card purchased. However, as noted above, the card is also used to represent a coupon for any product purchased and with appropriate mechanics the machine could include dispensing of a physical product as well. The computer also communicates with a bill acceptor 7 for receipt and crediting of money paid, and a modem 14 provides external communication with a remote server system

18 through a modem 17, over internal communication (telephone) lines 23 and external lines 24. The instant system includes a panel display 4 coupled to the computer to which may be used to display fixed informational messages or messages displayed in a marquee format or moving format.

Play on the system is initiated by pressing a play button 5 which signals the computer 10 to initiate a play sequence. However, play cannot be initiated unless a credit remains or until a bill is fed into and accepted by a bill acceptor 7 which signals the computer as to the denomination of the bill which is then displayed on monitor 3 in the form of a credit. An optional alternate play auxiliary button 8 is also provided which may replace or augment the play button 5.

Door sensors 22 and a administrative key 26 are also provided as a security feature. If the door to machine 1 is opened without an administrative key inserted, the system security is breached and the system closes operation and notice is provided to remote computer 18.

Finally, the computer system may also have an alternate keyboard 15. This keyboard will usually not be on site but may be brought to the site by maintenance personnel and installed for maintenance purposes and the monitor 3 may be a touch screen 31 and used for input and output.

INITIAL INSTALLATION STARTUP

On initial installation and startup of the machine 1 for the first time, certain initial parameters must be set and the basic software loaded. These parameters include but need not be limited to:

Person/company renting machine, and I.D. location of machine, initial load of calling card credits, telephone number of machine, and 800 number of remote server. In addition, the prize table information may be entered directly or downloaded into EE-PROM memory from the remote system.

Rudimentary load routines are resident in the system in the form of ROM or other non-volatile memory. Initially, the BIOS (Basic Input Output System in the case of a P.C. Based Computer System) will autoboot from CD-ROM into EE-PROM memory. Usually an operator will be present on the first start up to install the system and a number of interactive tests of the system take place.

The first test is a complete test of the CD-ROM drive. The entire operation of the CD-ROM is examined to ensure that no defects are present. Of course, if the drive is defective the initial software load cannot take place.

The system then conducts a test of memory and determines whether the memory can be written and read and properly address. The size of memory is also determined although the typical configuration would be 16 megabytes.

The system then conducts a test of the video system, monitor 3 to determine (color purity, position, size) and if appropriate resets to values suitable for the particular monitor 3.

The system then conducts a test of the sound system 12 and communication with the sound card specifically the following parameters are tested, digital out, FM out, joystick Inputs which interface with the play or auxiliary button).

The system then conducts a test of the bill acceptor 7, including motor function and scanning tests.

The printer is also tested for communication with the computer system and test printouts are made.

The modem is also tested for communication with the computer 14 and whether or not a dial tone is present. On completion of the modem test provided the modem is operational, the system causes the modem dial an 800 number to connect with a remote server for communications the computer system 10 uploads and downloads information from the remote server 18. Some of the information sent is the name or I.D. of the machine 1, its location, number of tickets purchased and dispensed, and the number of prizes dispensed. A number of other tests are made or described below.

SUBSEQUENT STARTUPS (POWER-ON OR RESET)

Once the initial installation is achieved, the system turn on or reset causes the options e.g., distribution table and initial test parameters and configuration to be retrieved and applied. A copyright notice for the software is displayed on monitor 3 and same tests of the components of the system conducted on initialization commence in an automated fashion and if successful the system commences an attract mode to alert potential purchasers of the existence of the machine 1.

A test print of a calling card with no value is made to allow verification of ticket/ribbon function.

Following the tests, the system enters the "Attract Mode" until a bill is inserted or an administrative key is inserted.

When a bill is inserted, the bill reader determines the denomination thereof and the monitor displays the credits allowed. It should be noted that the purchaser cannot 'CASH-OUT' so a reasonable limit may be placed on the amount of accruable credits, that is the amount of

money a purchaser may insert into the machine. On computation and display of the credits the user is prompted to press the play button. On pressing the play button, the Monitor displays shows an animated display using built-in graphics and sound. This may be simply a simple win with music and simple positive scene or loose with a negative scene and lose music.

As noted in Figure 1, this scene may be the simulated spinning of wheels with symbols on them which when lined up signal a win of a predetermined amount, playing cards which designate a winning hand when turned over, tic-tac-toe game. In the instant invention spinning wheels are simulated showing three symbols in three columns. The line up of three symbols horizontally across center of the screen can be used to designate a winning combination. Winning combinations could also be designed to include lining up of the winning symbols along the top, or bottom of the screen or vertically along on the left, center or right of the screen. The winning symbols can also be designed as those which line up along the two diagonals of the utilize the diagonals of the three simulated wheels. For this invention the symbols are currency like symbols with numeric designations. When three designations line up the amount shown on the currency symbols is printed as a prize on the calling card along with the calling card time and validation information.

When the play ends, the credits are decrement and the display shows any remaining and prompts the user for another play. This permits the user to be aware of credit usage before each play. If there are no credits remaining then the system returns to attract mode.

If an administrative key is inserted, that is the key which either opens the machine or which is otherwise coupled to the computer, the screen is cleared, a menu is displayed for selection of printout or display of statistics and accounting information. An optional keyboard may be attached for entry of information and selections. If the optional keyboard is not available, which is most likely since it is not supplied with the machine 1, single/double tap of the play button as input device in administrative mode may also be used.

The monitor 2, of machine 1, may include a touch screen 31. Accordingly the monitor 3 may display a menu which may be activated by touching the touch screen face. Use of the touch screen permits selection of various administrative functions and allow individual selection of various testing options such as testing and re-calibration of the sound system, video parameters, memory parameters, etc.

In the attract mode, a commercial or advertisement generated from the CD-ROM which utilizes both graphics and sound is displayed and played to attract potential customers. The graphics/Sound, are built up in a desirable fashion to coincide with the simulated spinning of

wheels. A simulation of the spinning of wheels is displayed and each wheel stops with an accompanying click at designated symbols.

Based on the sequential prize selection list, the wheels will indicate a prize has been won and the value of the prize to be awarded. Additional appropriate graphic and sounds to convey win may accompany the printing of the calling card matching ticket with at least a PIN #, instructions, and time allotted along with the prize amount.

The system also monitors continuously, the number of calling card credits remaining. When 10% or some other level of credits remains, the system initiates a call to the remote server. In addition, the machine 1 monitors local supplies and displays a signal when the cards remaining on a roll in printer is low. This can commence on reaching a 10% level of the initial card count and as the level decreases the signals become more frequent and the machine sounds an alarm more often. If the cards are not replenished, the machine stops functioning and calls the remote server.

A Dial Tone test on the modem is made on a periodic basis however, continuous or excessive failures, that is, 3 or more in sequence, will cause machine to stop between the printing of each calling card and sound a warning of inability to communicate.

Status of optioned storage device, if any are polled on second/millisecond intervals and cannot be removed/replaced without computer 10 sending the change.

The Machine 1 is provided with at least one security sensor switch 22 which signals that the Machine 1 back panel door or any other access door is open. If the administrative or maintenance key is not present the system halts and the remote system is called. Other security devices, such as a tilt switch and the like may also be employed.

The three wheel display, with room for graphics and/or explanatory text at top and bottom of screen is of the following form

Graphic/Messages

SP	Wheel 1 Pic 1	Wheel 2 Pic 1	Wheel 3 Pic 1	SP	Control Indicia
SP	Wheel 1 Pic 2	Wheel 2 Pic 2	Wheel 3 Pic 2	SP	
SP	Wheel 1 Pic 3	Wheel 2 Pic 3	Wheel 3 Pic 3	SP	

Graphic/Messages

The 'SP' represents a spacer/graphics/border for the wheels, a logo is presented at the top of the screen, while text messages appear on the bottom of the screen to help the user along the telephone card purchasing process

The Wheel 1/2/3 columns represent a 'virtual' wheel, scrolled smoothly up or down to depict a spinning wheel, viewed edge on, with the graphics along the edge. The wheels are simulated to in the same fashion as physical wheels for realism and then snap into place when simulated rotation is to cease to indicate finality and an accompanying sound is generated.

The pay out line is along the 'Pic 2' row, when matching symbols line up across the middle row, a larger graphic will appear, overlaying the three wheels, showing an animated face telling you your prize, while this is displaying, a ticket is being printed duplicating the pay out amount, redeemable with the renter of the machine(s).

While a single pay out line is shown, the machine may be programmed to include pay out lines along each vertical, each horizontal and on the diagonals thereby providing up to 9 pay out lines. In addition, the pay out game or display is not limited to a three by three matrix of symbols, but may be any other display of symbols or graphic information which results in the display of winning or non-winning indicia.

The machine 1 never answers the phone, uses a standard company phone line, dialing '9' and an access code if appropriate or needed. Several machines may be connected together in a 'daisy-chain' onto a single phone line if needed by simply altering the times of day that each machine calls the remote system to avoid conflict. The number to be called is an 800 phone number to prevent the renter from incurring a phone charge when the machine 1 calls the remote system 18 for upload or download.

If a machine 1 is interrupted prior to completing its transaction with the server, no update will occur, the machine will pause for a short duration and retry the operation. As stated before, continued or excessive failures will cause the machine to fail and report that communication was interrupted thereby preventing tampering.

If a machine 1 is reported stolen, it is simply flagged as such in a database on the remote system 18. If the machine 1 calls in at any time thereafter, it will be notified by the remote system 18 that it has been stolen and the machine 1 security features will be initiated. This could include a command to increase in the volume of the machine or even messages which may be displayed or sound generated "I am stolen" messages or simply shut down. The machine may have the option of calling 911, the pagers of the machine 1 owners or the remote system 18 on a regular basis to provide the local telephone number at which the machine is located by its telephone id. The police for example can trace and respond to any 911 call, regardless of

whether or not a voice is on the line. In the absence of a voice, the police will appear on the doorstep of the location of the stolen machine 1. Since the theft of the machine will have been reported, the police will know to look for the machine 1.

The machine 1 could also begin making a lot of noise, overriding the volume knob as needed. The only way to profit from the theft would be to break into the case, thus setting off the security features of the machine 1. If a machine is disassembled, it will be pieced into a number of, small dollar parts and some hardware/software which would not justify the theft. If the parts are ever reassembled enough to work, the machine 1 will immediately call the remote server 18.

With reference to figure 3A through 3AV, The initial first start up of the machine on installation commences with a cold start (step 100). The BIOS autoboots from the CD-ROM and initiates a software load (step 102). If an error is detected (step 103), then the failure of the load is displayed and the system stops (Step 106). If no error occurs then the interactive test menu is display (step 104). The display, as shown, in step 105 permits the selection of 16 options which permit a series of interactive tests.

Referring to figure 3B the interactive tests commence by determining if the memory test, option 2 is selected (step 107). If so, the system memory test T2 is called (step 108). As shown in Figure 3H, the memory tests T2 tests the memory for read and write storage and addressing (step 200), if the memory test fails (step 201) then a transfer to error routine E2 occurs (step 205). As shown in Figure 3U, error routine E2 displays that the memory test failed and identifies the chip location (step 206) and the system stops, (step 207). If the memory test is successful, (step 201), then a message is displayed that the Memory check was successful (step 202) and the test returns to the calling location (step 203). On return (step 204) the select tests menu is again displayed.

Referring again to figure 3B if CD-ROM test, option 3, is selected (step 109) the CD-ROM test T3 is called (step 110). As shown in Figure 3I, the CD-ROM test T3 tests the CD-ROM for operation and response to system signals (step 300), if the CD-ROM test fails (step 301) then a transfer to error routine E3 occurs (step 305). As shown in Figure 3V, error routine E3 displays that the CD-ROM test failed and indicates that the CD-ROM is not accessible. (step 306) and the system stops, (step 307). If the CD-ROM test is successful, (step 301), then a message is displayed that the CD-ROM check was successful (step 308) and the test returns to the calling location (step 303). On return (step 304) the select tests menu is again displayed.

Referring again to figure 3B if video system test, option 4, is selected (step 111), the video display test T4 is called (step 112). As shown in Figure 3J, the video display test T4 tests the video display for operation, proper color, purity, position and size and other selected

parameters (step 400), if the video display test fails (step 405) then a transfer to error routine E4 occurs (step 166). As shown in Figure 3W, error routine E4 displays that the video display test failed and indicates that the video display is not accessible by displaying a message on the panel display or a print out. (step 406) and the system stops, (step 407). If the video display test is successful, (step 401), then a message is displayed that the video display check was successful (step 402) and the test returns to the calling location (step 403). On return (step 404) the select tests menu is again displayed.

Referring again to figure 3B if the sound system test, option 5, is selected (step 113) the sound system test T5 is called (step 114). As shown in Figure 3K, the sound system test T5 tests the sound system for operation, and response to inputs, digital output, fm out and response to system signals (step 500), if the sound system test fails (step 501) then a transfer to error routine E5 occurs (step 505). As shown in Figure 3X, error routine E5 displays that the sound system test failed and indicates that the sound system is not operational by displaying a message on the display (step 506) and the system stops, (step 507). If the sound system test is successful, (step 501), then a message is displayed that the sound system check was successful (step 502) and the test returns to the calling location (step 503). On return (step 504) the select tests menu is again displayed.

Referring to figure 3C, if the panel display test, option 6, is selected (step 115) the panel display test T6 is called (step 116). As shown in Figure 3L, the panel display test T6 tests the panel display for operation, and response to inputs (step 600), if the panel display test fails (step 601) then a transfer to error routine E6 occurs (step 65). As shown in Figure 3L, error routine E6 displays that the panel display test failed and indicates that the panel display is not operational by displaying a message on the display (step 608) and the system stops, (step 607). If panel display test is successful, (step 601), then a message is displayed that the panel display check was successful (step 602) and the test returns to the calling location (step 603). On return (step 604) the select tests menu is again displayed.

Referring again to figure 3C the next test commences by determining if the bill acceptor test, option 7, is selected (step 117) the bill acceptor test T7 is called (step 118). As shown in Figure 3M, the bill acceptor test T7 tests the bill acceptor for operation, and response to inputs (step 700), if the bill acceptor test fails (step 701) then a transfer to error routine E7 occurs (step 705). As shown in Figure 3Z, error routine E7 displays that the bill acceptor test failed and indicates that the bill acceptor is not operational by displaying a message on the display (step 706) and the system stops, (step 707). If bill acceptor test is successful, (step 701), then a

message is displayed that the bill acceptor check was successful (step 702) and the test returns to the calling location (step 703). On return (step 704) the select tests menu is again displayed.

Referring again to figure 3C the next test commences by determining if the printer test, option 8, is selected (step 119) in which case the printer test T8 is called (step 120). As shown in Figure 3N, the printer test T8 tests the printer for operation, and response system signals (step 800), if printer test fails (step 801) then a transfer to error routine E8 occurs (step 805). As shown in Figure 3AA, error routine E8 displays that the printer test failed and indicates that the printer is not operational by displaying a message on the display (step 806) and the system stops, (step 807). printer test is successful, (step 801), then a message is displayed that the printer check was successful (step 802) and the test returns to the calling location (step 803). On return (step 804) the select tests menu is again displayed.

Referring again to figure 3C the next test commences by determining if the modem test, option 9, is selected (step 121) in which case the modem test T9 is called (step 122). As shown in Figure 3O, the modem test T9 tests the modem for operation, and response to system inputs (step 900), if modem test fails (step 901) then a transfer to error routine E9 occurs (step 905). As shown in Figure 3AG, error routine E9 displays that the modem test failed and indicates that the modem is not operational by displaying a message on the display (step 906) and the system transfers loop T9 (step 905) as shown in figure 3O. As shown in Figure 3AG, a message is displayed that the modem has no dial tone (step 906) and a counter preset to zero is incremented, (step 907). If the count is not equal to 3, (step 908), then the modem test T9 is again implemented (step 912). If three successive tests fail, (step 908) then the message that system will not operate in displayed (step 909), the count is set to zero (step 910), and the system shuts down (step 911). Referring again to Figure 3O, if the modem tests operational, (step 901), a message that modem is operational is displayed and the dial tone count is set to zero (step 902). The system then returns to the calling location (step 903). On return (step 904) the select tests menu is again displayed.

Referring to figure 3D the next test commences by determining if the play button test, option 10, was selected (step 123) in which case the play button test T10 is called (step 124). As shown in Figure 3P, the play button test T10 tests the play button for on/off operation, (step 1000), if play button test fails (step 1001) then a transfer to error routine E10 occurs (step 1005). As shown in Figure 3AB, error routine E10 displays that the play button test failed and indicates that the play button is not operational by displaying a message on the display (step 1006) and the system stops, (step 1007). If the play button test is successful, (step 2001), then a message is displayed that the play button check was successful (step 1002) and the test returns to the calling

location (step 1003). On return (step 1004) the select tests menu is again displayed. Note that if the alternate play button is operational as determined below, then the system may continue in operation with notice to user.

Referring to figure 3D if the alternate button test, option 11, is selected (step 125) in which case the alternate button test T11 is called (step 126). As shown in Figure 3Q, the printer test T11 tests the alternate button for on/off operation, (step 1100), if alternate button test fails (step 1101) then a transfer to error routine E11 occurs (step 1105). As shown in Figure 3AC, error routine E11 displays that the alternate button test failed and indicates that the alternate button is not operational by displaying a message on the display (step 1106) and the system returns, (step 1107). If the alternate button test is successful, (step 1101), then a message is displayed that the alternate button check was successful (step 1102) and the test returns to the calling location (step 1103). It should be noted that if the play button is not available, the alternate button can become the play button and system operation continued. On return (step 1104) the select tests menu is again displayed.

Referring to figure 3D if keyboard test, option 12, is selected (step 127) in which case the system tests for an optional keyboard and test T12 is called (step 128). As shown in Figure 3R, the optional keyboard test T12 tests for the presence of an optional keyboard and its operation, (step 1200). The optional keyboard would only be present if administrative functions are required or if maintenance is being performed. Its absence does not interrupt play. If the optional keyboard test fails (step 1201) then a transfer to error routine E12 occurs (step 1205). As shown in Figure 3AD, error routine E12 displays that optional keyboard test failed and indicates that the optional keyboard is not operational by displaying a message on the display (step 1206) and the system returns, (step 1207). If the optional keyboard test is successful, (step 1201), then a message is displayed that the optional keyboard check was successful (step 1202), the system is initialized to use the optional keyboard (step 1202) and the test returns to the calling location (step 123). Thereafter the keyboard may be used for maintenance operations or other access into the system. It should be noted that if the optional keyboard is not available system operation will continue. On return (step 1204) the select tests menu is again displayed.

Referring to figure 3D the next test commences by determining if the touch screen test, option 13, is selected (step 129) in which case the system tests for an touch screen and test T12 is called (step 130). As shown in Figure 3S, the touch screen test T13 tests for the presence of a touch screen and its operation, (step 1300). Interactive touching by the operator is saved by the system. The touch screen can be used for alternate user input and play selection and can be used for administrative functions as well as maintenance functions. Its absence does not interrupt

play. If the touch screen test fails (step 1301) then a transfer to error routine E13 occurs (step 1305). As shown in Figure 3AE, error routine E13 displays touch screen test failed message and indicates that the touch screen is not operational by displaying a message on the display (step 1306) and the system returns, (step 1307). If the touch screen test is successful, (step 1301), then a message is displayed that the touch screen check was successful (step 1302), the system is initialized to use the touch screen for input (step 1302) and the test returns to the calling location (step 1303). During initialization messages may be displayed in the message areas on the monitor 3, in regions 27, 29 and push button indicia may be displayed in region 28. The selection and location of various displays, messages and input regions is a matter of choice. Thereafter the touch screen may be used for game play, maintenance operations or other access into the system. It should be noted that if the touch screen is not available system operation will continue. On return (step 1304) the select tests menu is again displayed.

Referring to figure 3E if the door sensor test, option 14, is selected (step 131) the system tests for the door sensor and test T14 is called (step 132). As shown in Figure 3T, the door sensor test T14 tests for the presence of a door sensor and its operation, (step 1400) essentially on an off test. The door sensor tests for an open and closed access door. If the door sensor test fails (step 1401) then a transfer to error routine E14 occurs (step 1405). As shown in Figure 3AF, error routine E14 displays door sensor test failed by displaying a message on the display (step 1406) and the system returns, (step 1407). If the touch screen test is successful, (step 217), then a message is displayed that the touch screen check was successful (step 1402), and the system return (step 1403). On return (step 1404) the select tests menu is again displayed.

Referring again to Figure 3E, if option 1 is selected, that is if all tests are selected, option 1, (step 133) system tests for all of the above-identified tests. According to Figure 1 as for all above-identified tests (step 134).

Referring to Figure 3F the system starts all tests T1 commencing with a call to the memory test T2 (step 138) then a call to the CD ROM test T3 (step 139) a call to the video display test T4 (step 140) a call to the sound system test T5 (step 141) a call to the panel display test T6 (step 142) a call to the bill acceptor test T7 (step 143) then following on to Figure 3G a call to printer test T8 (step 144) a call to the modem test T9 (step 145) call to the play button test T10 (step 146) a call to the optional button test T11 (step 147) a call to the keyboard test T12 (step 148) a call to the touch screen test T13 (step 149) a call to the sensor test T14 (step 150). After completing all of the tests the system returns (step 151).

On the commencement of a normal start up initialization (step 1600) previews the input data as retrieved from memory (step 1601). The automatic tests of the system and peripherals is

commenced (step 1602) by call to all of the tests T1 (step 1603). When the tests are completed the system returns on return 1 (step 1604).

Referring to Figure A1, the system continues by initiation of a call to the central computer system server (step 1605). Determination is made if the call to the system server was successful (step 1606). If the connection was not properly made then the system transfers to an air routine EE1 (step 1607). EE1 displays that the transmission has been interrupted (step 1614). The counter initially set at zero is incremented (step 1615). A test is made to determine if the count is equal to three (step 1616) and if not, transferred to a re-dial return ETT1 is initiated (step 1617) and a call is again initiated to the central computer system server (step 1605). If connection is properly made (step 1606) then the machine 1 uploads system information including, but not necessarily limited, to the name of the user of the system, its location, the number of tickets purchased, the number of tickets remaining and the number of prizes awarded. A test is made to determine whether or not all data was properly received (step 1609). If not, error routine EE1 is again called (step 1610) and the upload is retried and again tested. On three successive failures the message is displayed, that the system will not operate without modem access to the server system (step 1618) and the count is again set to zero (step 1619) and the system is shutdown (step 1620). If all data was properly received (step 1609) then the system downloads security information including security messages, the number of additional ticket credits determined for the site and any other administrative information required (step 1611). If all data was properly received (step 1612) a test is made to determine whether all data was properly received (step 1612). If the data was not properly received then transfer is made to an error routine EE1 (step 1613) and downloaded again attempted three times in the absence of success on the third try the message that the system will not operate without modem access to the server system, the count is set to zero and the system is shutdown. If all data was properly received then the system continues on as shown in Figure 3AK.

All memory records and messages are updated (step 1621). A test is made to determine whether a security message was sent (step 1622). The security message is typically that either the system is stolen or that some other breach of security has occurred and the system is shutdown (step 1624). If no such security message is sent then the system continues on (step 1623).

Referring to Figure 3AL the system prints a test ticket having no value (step 1625) and initiates an attract mode (step 1626). Several versions of the attract mode may be selected for implementation. These include memory generated video and sound, panel attract marquee releases and special CD ROM driven video and sound may also be provided. If the downloaded

information includes a CD ROM attract feature (step 1627) then the system plays video and sound from the CD ROM (step 1628). In addition the system transfers to the panel attract mode (step 1633) and runs the panel attract message (step 1634). If the video attract message is on (step 1629) then the memory resident display which can be either affixed or an animated display appears on the monitor (step 1630). If the sound attract is on (step 1630) then the system plays the designated sound (step 1632). Again if the panel attract is on (step 1633) then the panel attract message is run. In any case under the current implementation the panel attract message and a CD-ROM display will be run and the system transfers for further processing.

With reference to Figure 3AM, system tests for administration key insertions (step 1635). If the administration key is not inserted (step 1636), the system tests for an assertion of money in the bill acceptor (step 1637). If money has been inserted in the bill acceptor (step 1638) the bill acceptor tests for denominations and increments credit to a credit limit, if any, (step 1640).

Referring to Figure 3AN, the system testing continues and the system tests to determine whether a play key was pressed (step 1651). If so it checks if there are still pay outs in the pay out block (step 1652). If so the next pay out in sequence is selected (step 1655). The system then tests to determine where the pay out block designates a cost (step 1656). If no prize is designated then step 1657 the system runs the non-winning routine (step 1657). If a prize is designated then the system runs the winning routine (step 1658) and a face is displayed announcing a win. In the case of a non-winning prize the system dispenses the purchase as shown in (step 1660) Figure 3AO. If a prize is selected then the system dispenses both the purchase and the prize (step 1659). If there are any play credits left the system moves to the attract mode with the credit still on the machine (step 1662) and the attract sequence commencing with step 1626 is repeated. If there are no credits left then the system signals that the game is over (step 1663) and transfer to the attract mode is again made (step 1664). The non-winning routine of course is the display of the spinning wheels that fail to lineup to indicate a win. The run of the winning routine results in an alignment of the winning indicia such as three 5's in a row accompanied by appropriate music. Referring to again 3AN, if there are still pay outs in the pay out block which results from the distribution table Figure 6, The blocks are selected in step 1655 as shown in Figure 3AN. If there are no pay out blocks remaining then the system transfers to a system routine to generate new pay out blocks (step 1654). Referring to Figure 3AT the system transfers to step 1666 to commence the generation of a new payout block of 5000 as will be described below and fills in a new payout block array.

Referring to Figure 3AM, if an administration key is inserted (step 1636) then the system transfers to a menu display as shown in Figure 3AP. The menu displays an interactive

testing option 1, a re-calibration of the touch screen, option 2, printout of accounting information option 3, a 4, display of accounting information option 4, and an exit option 5 which exits from the administrative routine. If interactive testing is selected (step 1666) then the original interactive screen test is run (step 1667) commencing as shown in Figure 3A commencing with step 104. If re-calibration of the test screen is required (step 1668) then transfer to a re-calibration routine (step 1669) is initiated.

The re-calibration option commences with a determination of the location parameters for selected touch regions (step 1680) and indicia is displayed on the monitor such that the displays are co-located with the selected touch regions. The displays are indicative of function (step 1681). The system then links the functional routines to signals generated on touch screen regions to implement operations of the screen (step 1682). If option 3 is selected step 1670 then the routine transfers to a printout of accounting information (step 1671). As shown in Figure 3AR a printout of account information includes the number of tickets sold, the number of tickets remaining on a roll the number and the denomination of prizes awarded and the amount of money received by the machine and the system returns to the display menu Step 1665. If option 4 was selected then the accounting information is to be displayed (step 1672) and control is transferred to the display routine (step 1673) shown on Figure 3AS the display of accounting information includes the same information which would appear on a printout (step 1684). However, the display remains for review until the play button or a keyboard entry is made (step 1685) in which case the return is transferred to the display menu. If option 5 is selected (step 1674) then edit closes and the system transfers to the attract mode (step 1675).

Finally, Figure 3AW illustrates the data entry which occurs on entry of option 15 on start up menu.

The system transfers at (step 151) as shown in Figure 3E on selection of option 15, data entry to the data entry shown in Figure 3AW. The operator enters the necessary start up data as follows:

1. Customer Name
2. Customer Location
3. Customer I.D.
4. Customer Telephone Number
5. Percentage of return to be paid
6. Distribution table information
7. Remote server information including access telephone number.

After entry is completed the system returns to the start up menu (step 152).

While this system has been shown for a single machine 1, an option may be provided to grant major prizes such as \$1,000 which will be made available through management by the remote server.

Selected machine 1's will be designated at random for a major prize. Those machines selected will be downloaded with the major prize selection and the prize will be placed and the prize will be placed and recorded in the distribution table at download. On the next cycle which generates the next group of prizes the major prize will be included in the array and will be selected at some time in the sequence. The remote system will download a new distribution table after the major prize is awarded.

The purchaser may obtain a \$100 award on site and will leave his name and address for a mail in of the balance of the award from the central system. The local vendor will be reimbursed for the \$100 award.

Those skilled in the art will become aware of other implementations and versions of this invention, and the invention is not intended to be limited to the specific embodiment described but encompasses all equivalents thereof.

Claims:

1. A machine, comprising
a housing adapted for housing at least part of a computer;
a computer mounted on the housing, having at least one input and one output, including a display device coupled to the computer and a communication device coupled to the computer;
a bill acceptor adapted for receiving currency and determining its denomination coupled to the computer;
a currency storage device;
at least one play control apparatus coupled to the computer;
means for generating an animated display for a predetermined period of time on the display device on operation of the play control apparatus.
means for determining the value of the currency denomination and displaying a credit on the display device;
means for accessing a remote computer system and uploading or downloading information utilizing the communication device; and
means for disabling the computer if the communication device is unable to communicate with the remote computer system.
2. The machine of claim 1, further comprising computer readable device for storing instructions for operation of the computer;
3. The machine of claim 1, further comprising means for dispensing a product on the operation of the play apparatus.
4. The machine of claim 3 further comprising means for determining if a prize is won on operation of the play apparatus; and
means for dispensing the prize.
5. The machine of claim 4, wherein the means for determining if a prize is won further comprises randomizing means for creating a pre-selected number of different prizes distributed in random order; and
means for processing the prizes for each operation of the play apparatus by selecting prizes in sequential order.
6. The machine of claim 4, further comprising means for determining exhaustion of the pre-selected prizes processed by the processing means; and
reinitiating the randomizing means for creating another pre-selected number of different prizes distributed in random order.

7. The machine of claim 1, further comprising means for downloading information from a remote computer system; and
means for disabling the computer system on receipt of security information.
8. In a computer system for controlling a vending machine, a method comprising:
determining if a bill has been inserted into a bill reading device;
generating currency information related to the value of the bill;
converting the currency information into credit information;
displaying the credit information on a display device;
initiating play on the operation of a play control apparatus controlling the display;
displaying an animated game on the display device in response to the operation of the play control apparatus;
determining if a win or a loss indicia should be displayed on the device at the end of the game;
terminating the game and displaying the win or loss indicia;
dispensing a product after terminating the game;
dispensing a prize if a win indicia is displayed;
determining if another game is to be played;
entering attract mode if another game is not to be played;
communicating information to a remote computer system; and
receiving information from the remote computer system.
9. The method of claim 8, further comprising:
evaluating the received information for security information; and
terminating the operation of the computer system in response to the security information.
10. The method of claim 8, further comprising
randomizing a pre-selected number of prizes having a plurality of values; and
dispensing selected ones of the number of prizes on display of the win indicia.
11. The method of claim 8, further comprising
randomizing a pre-selected number of prizes having a plurality of values; and
dispensing the next in sequence of the plurality of randomized prizes on display of the win indicia.

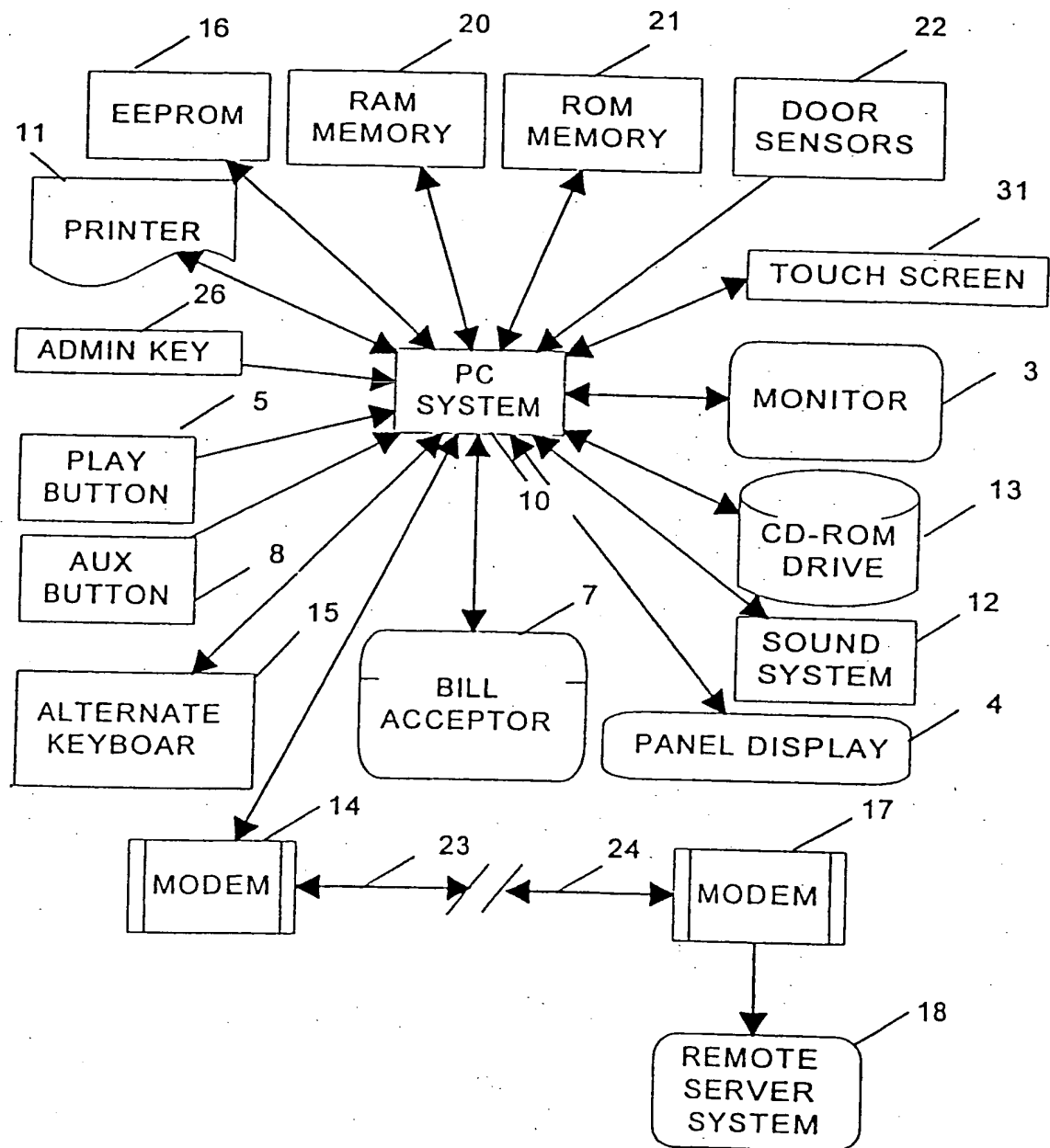


FIGURE 2

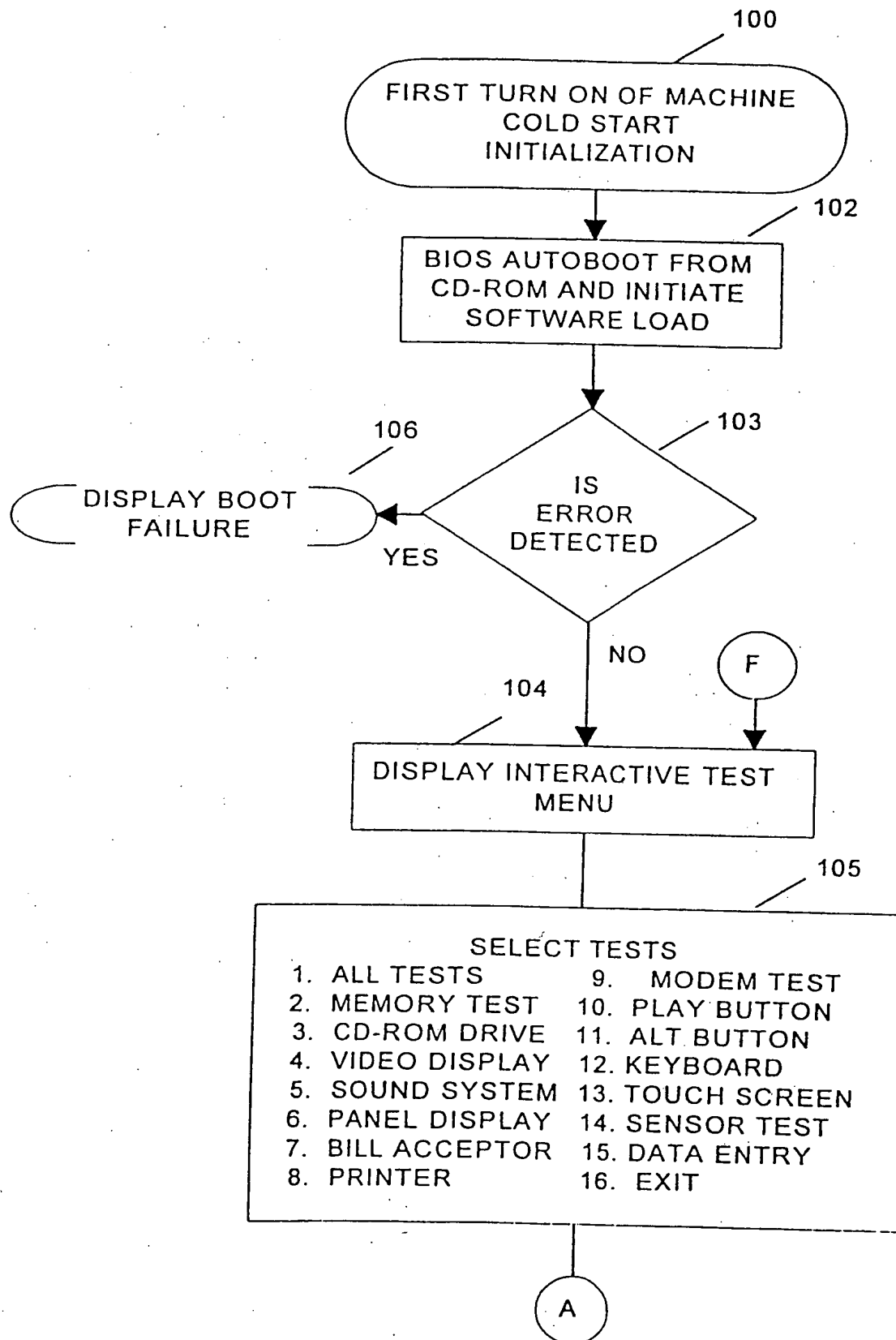


FIGURE 3A

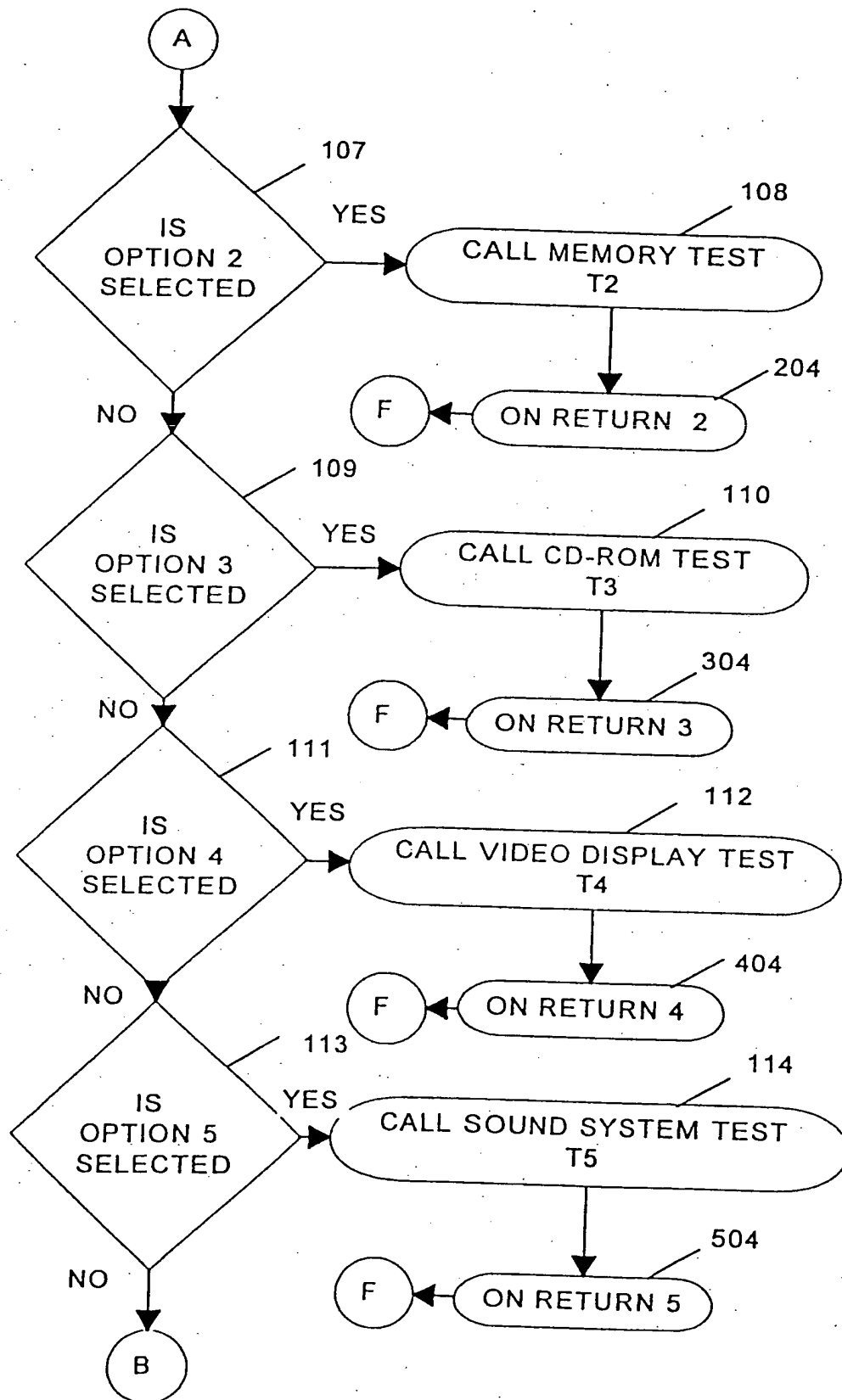


FIGURE 3B

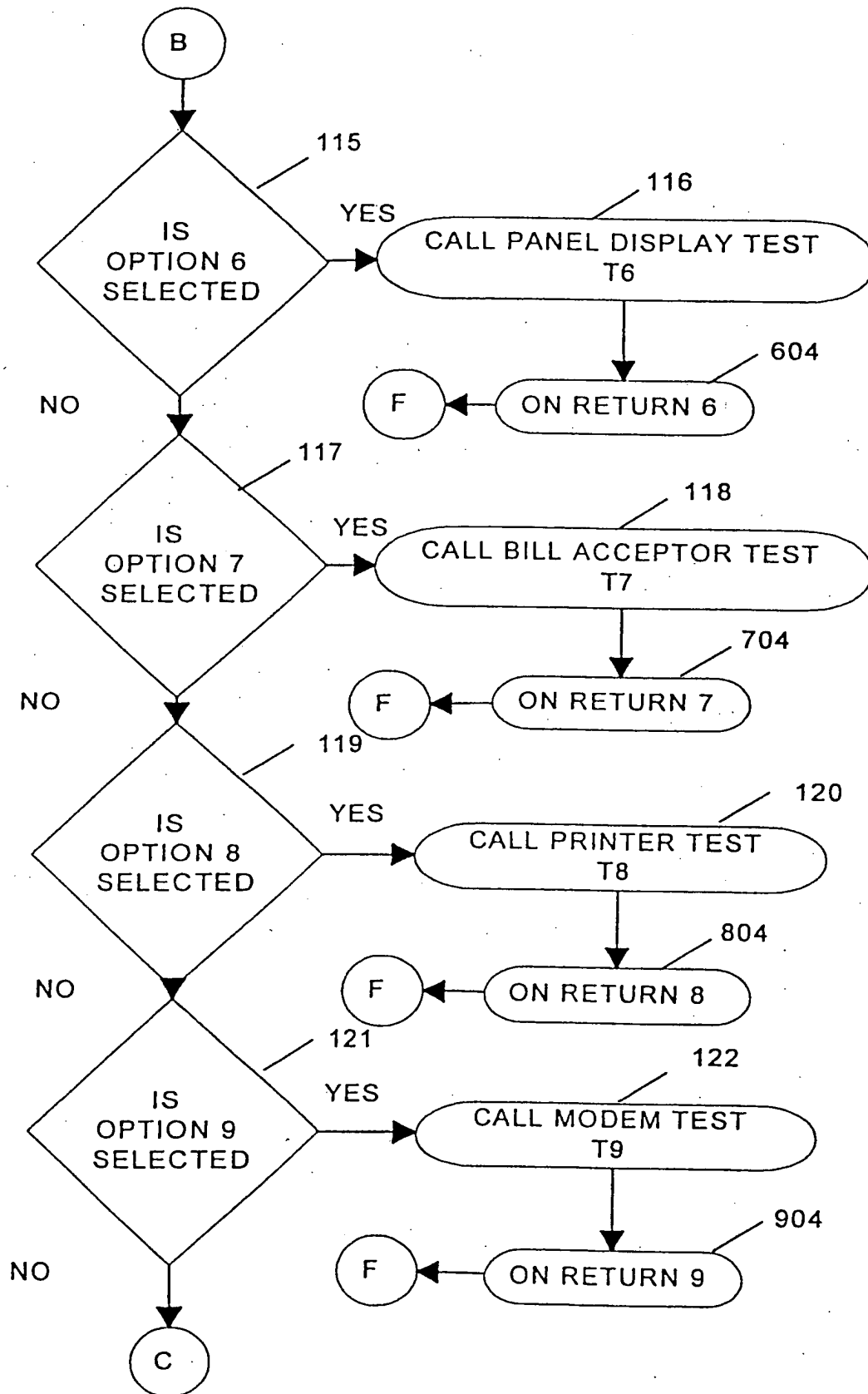


FIGURE 3C

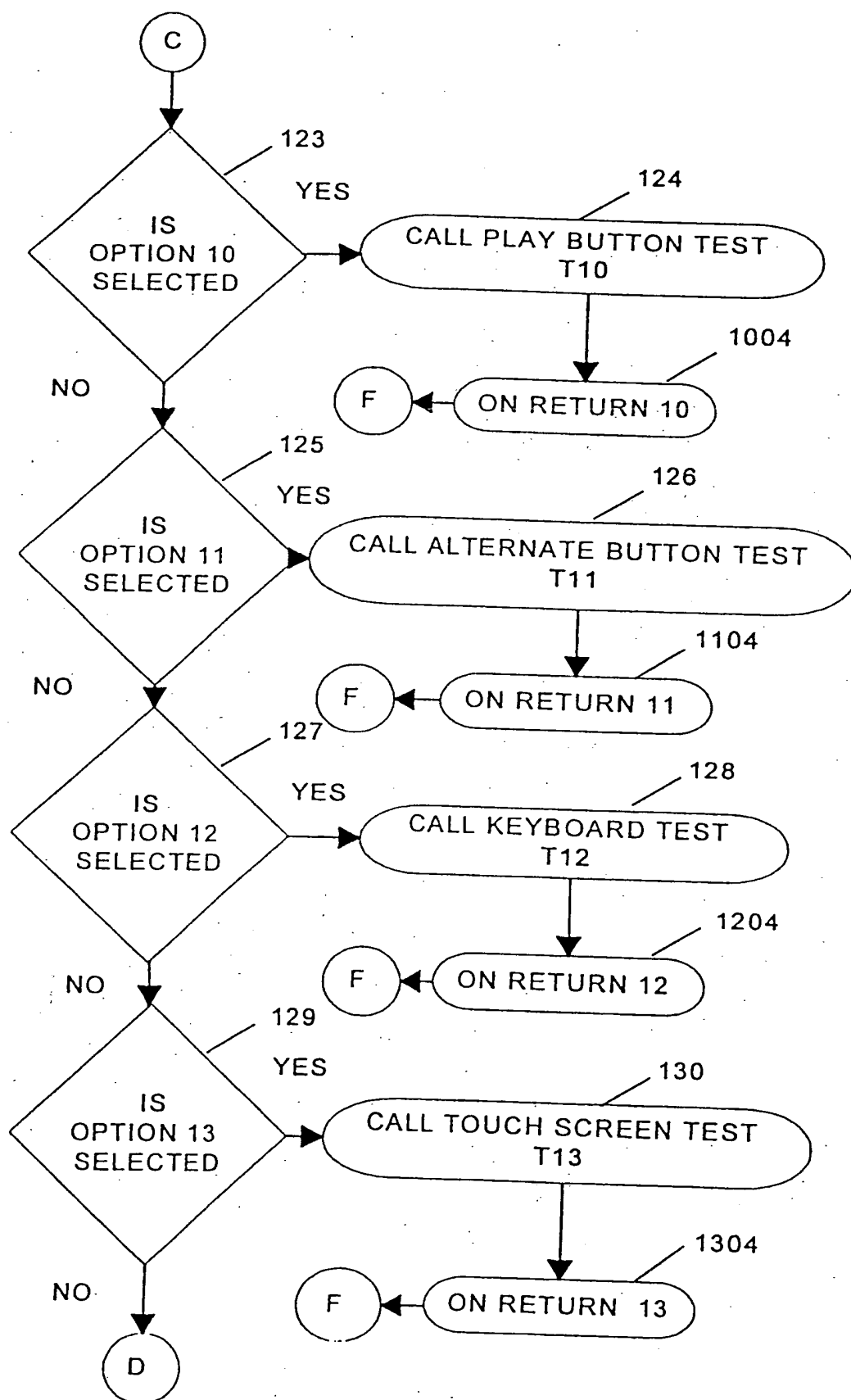


FIGURE 3D

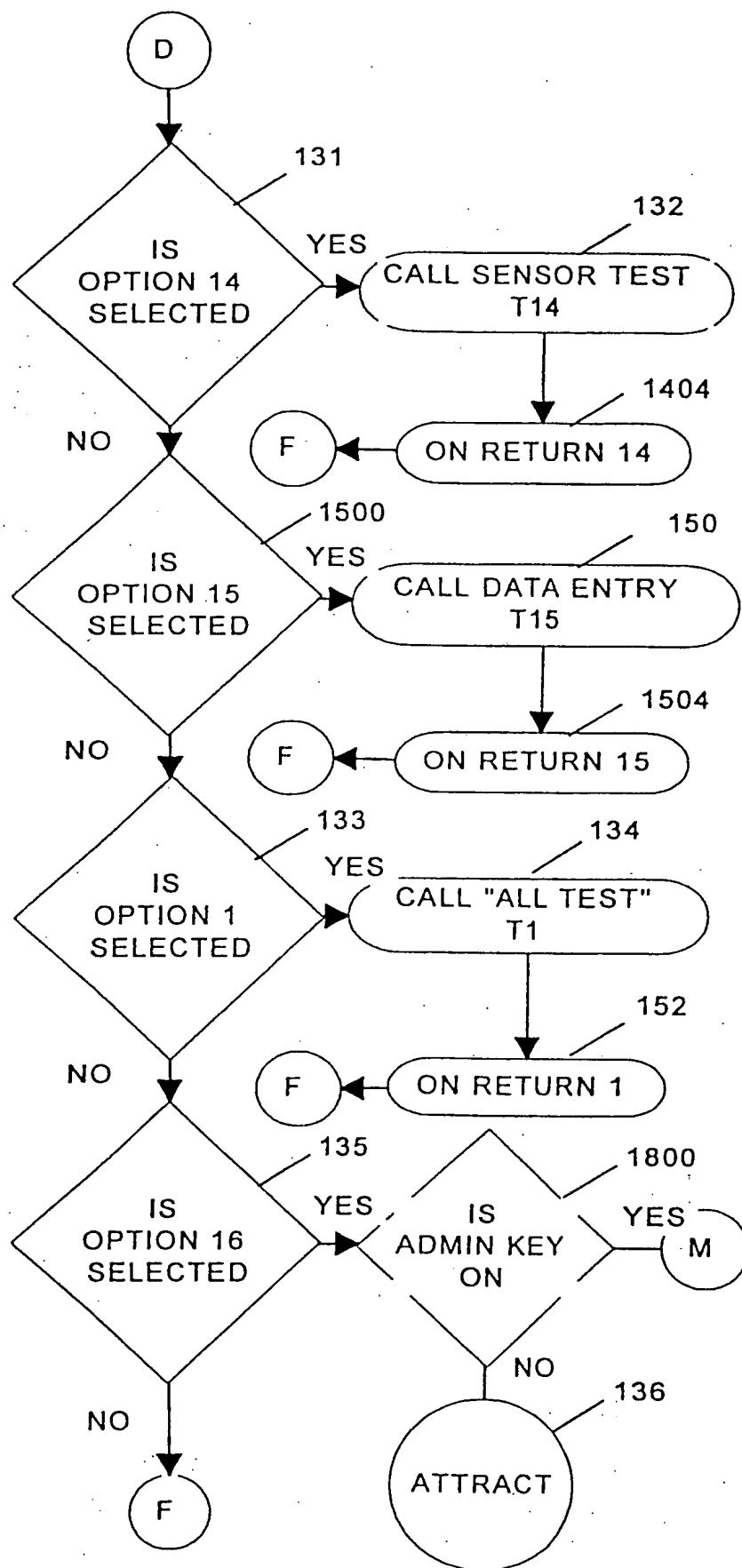


FIGURE 3E

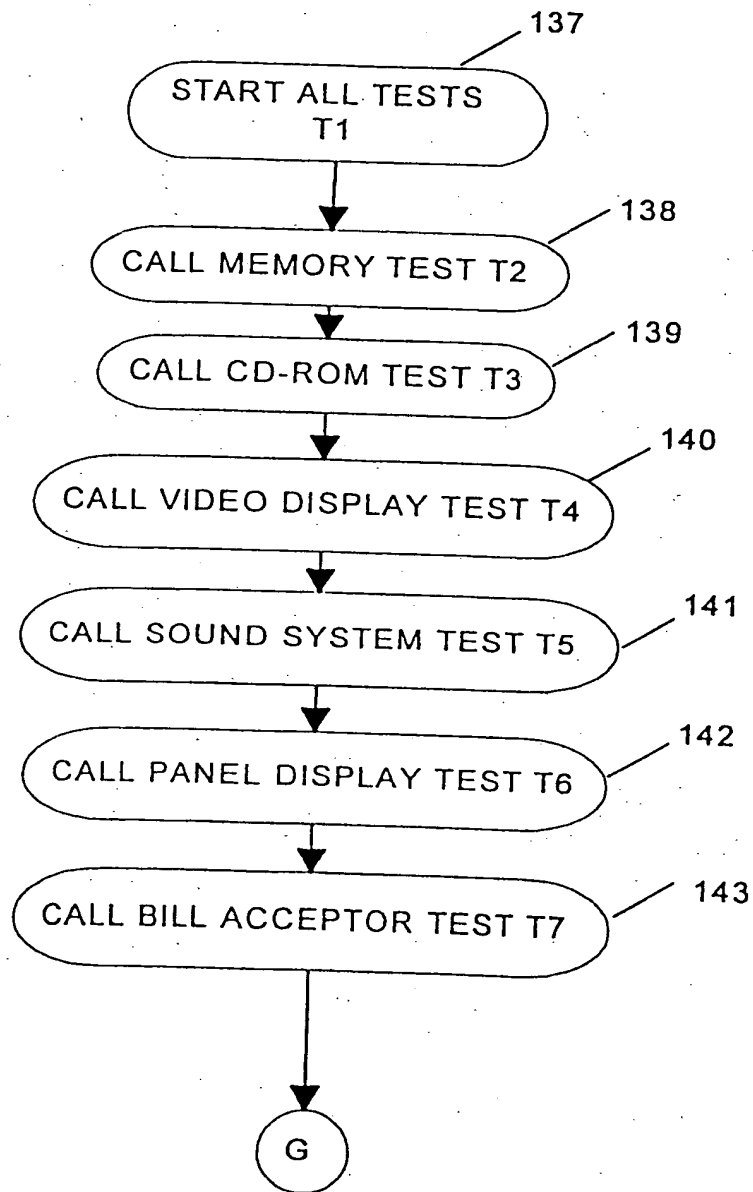


FIGURE 3F

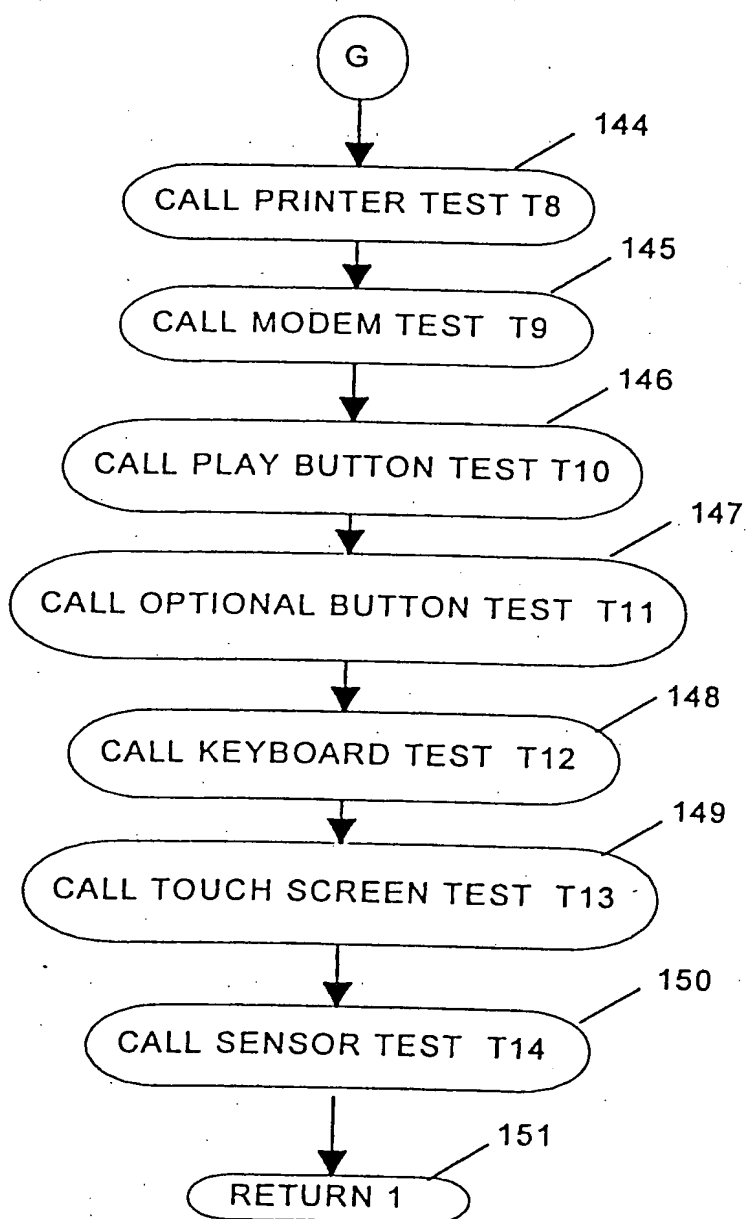


FIGURE 3G

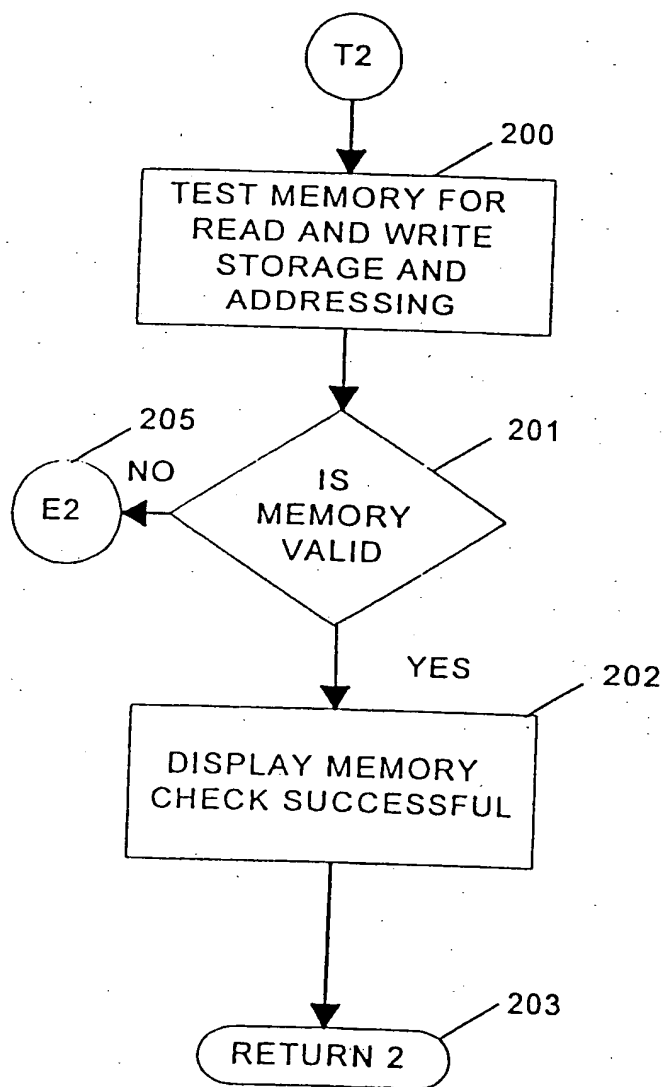


FIGURE 3H

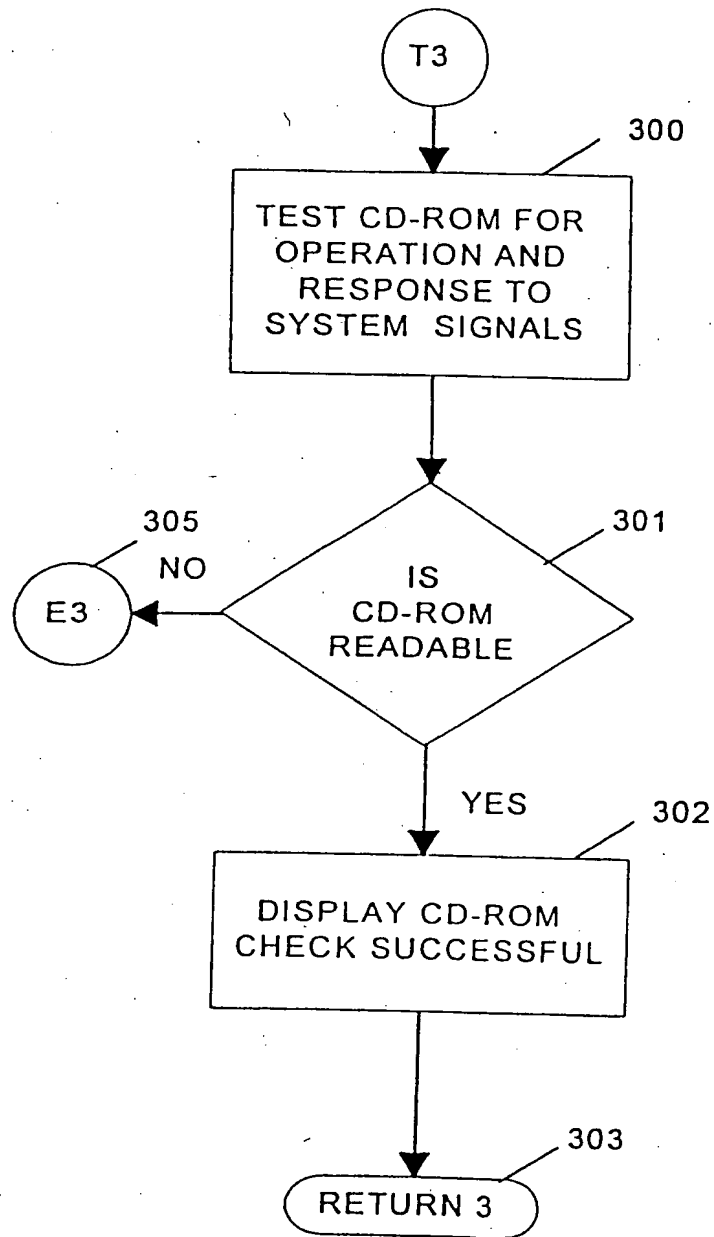


FIGURE 3I

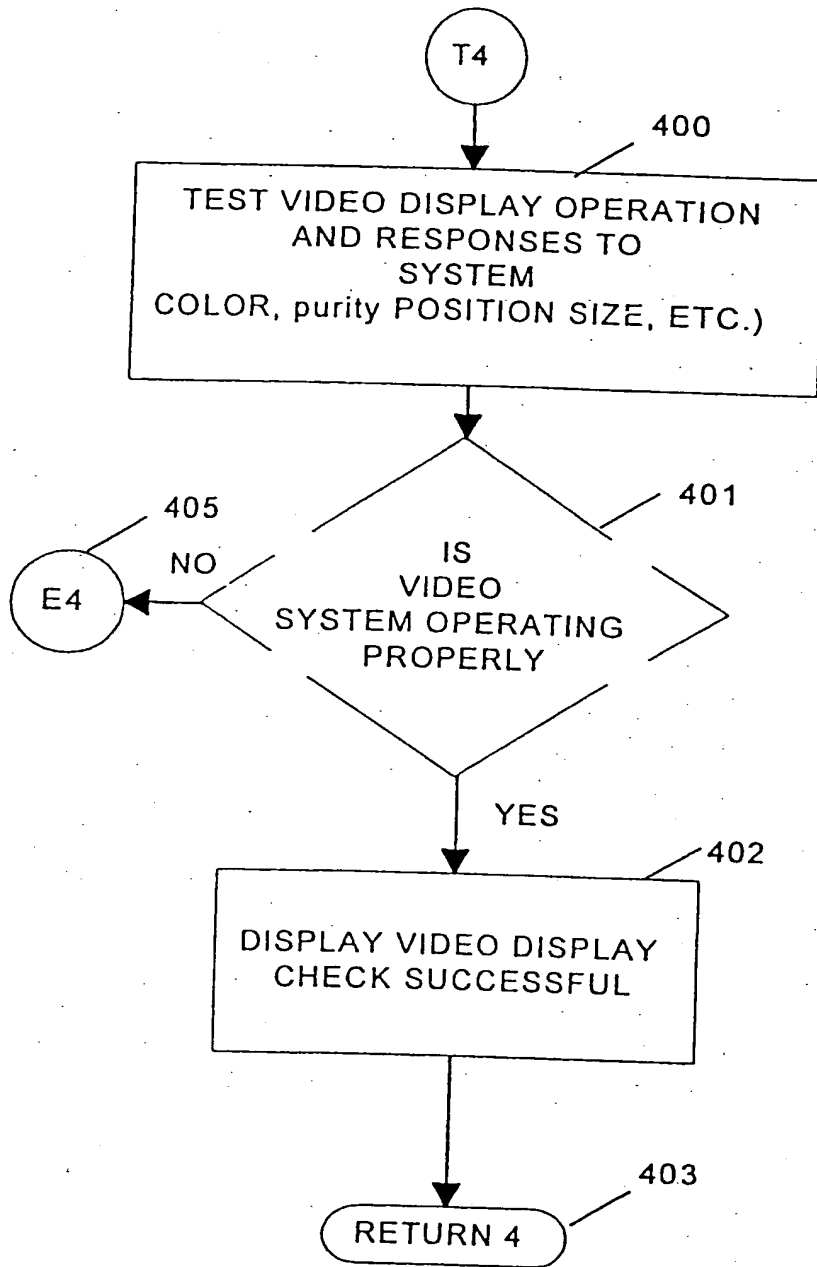


FIGURE 3J

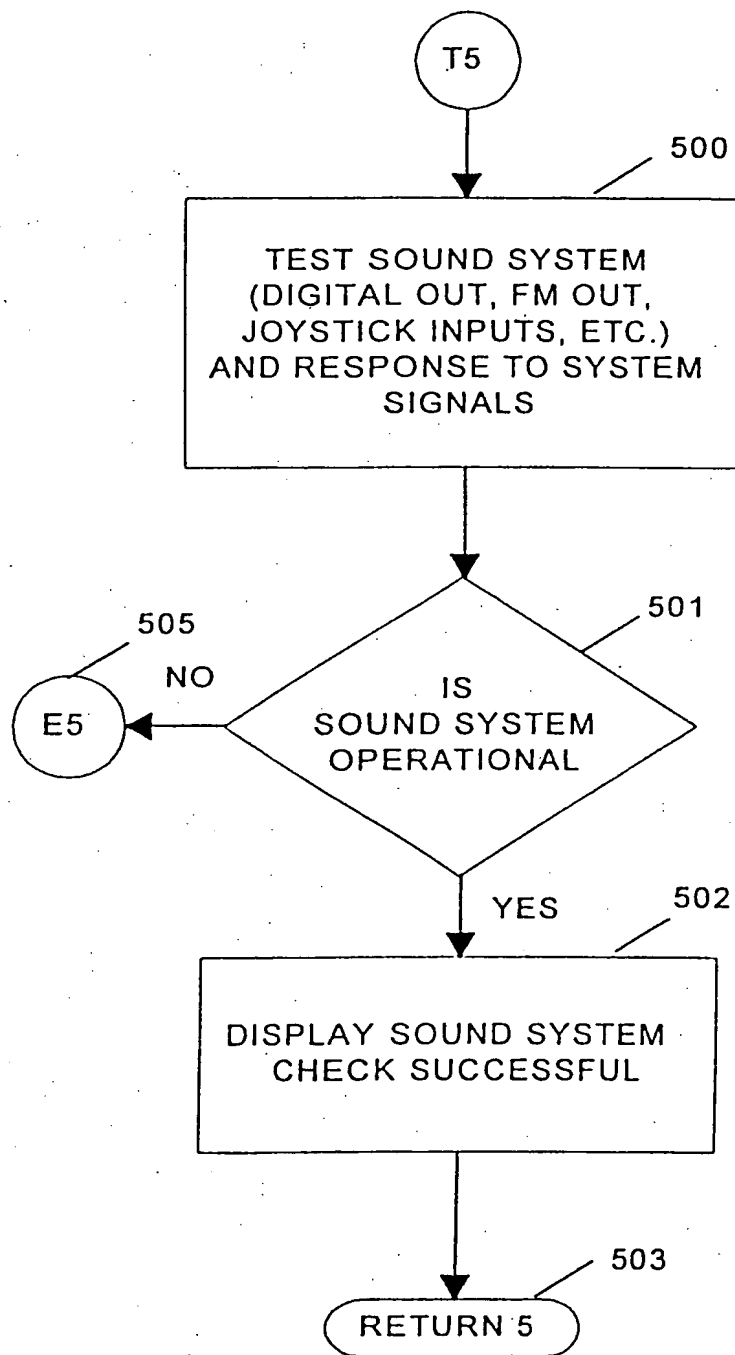


FIGURE 3K

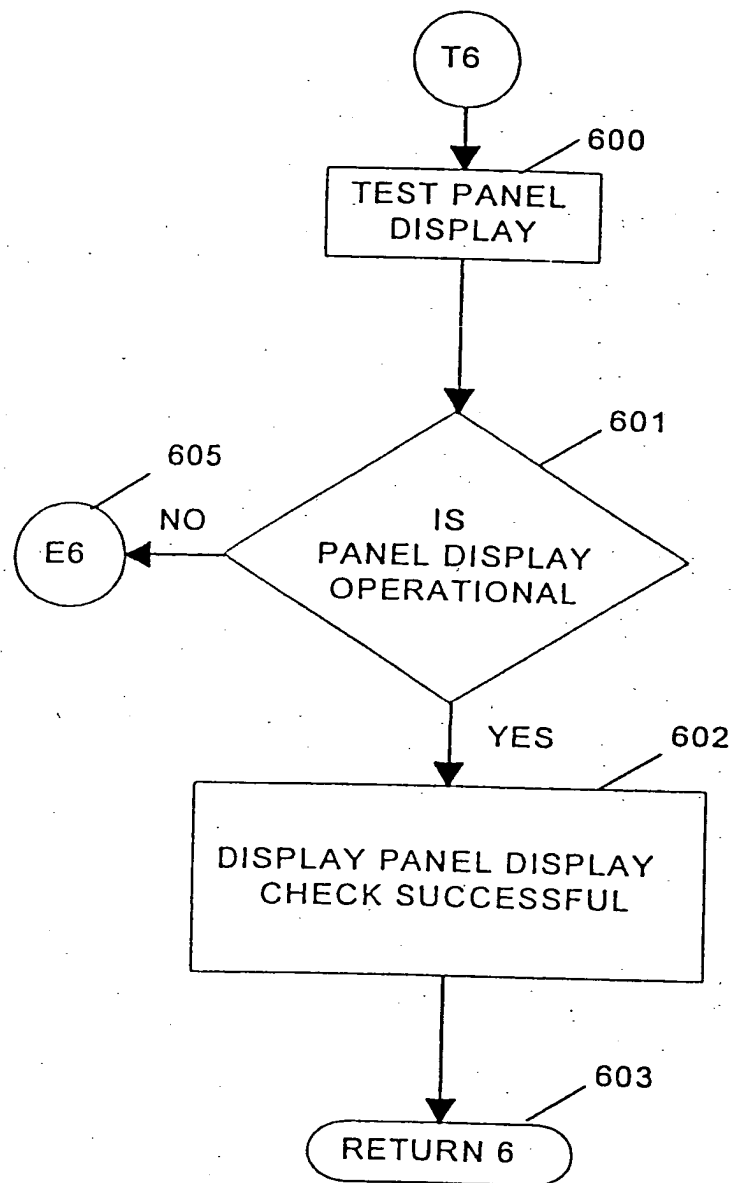


FIGURE 3L

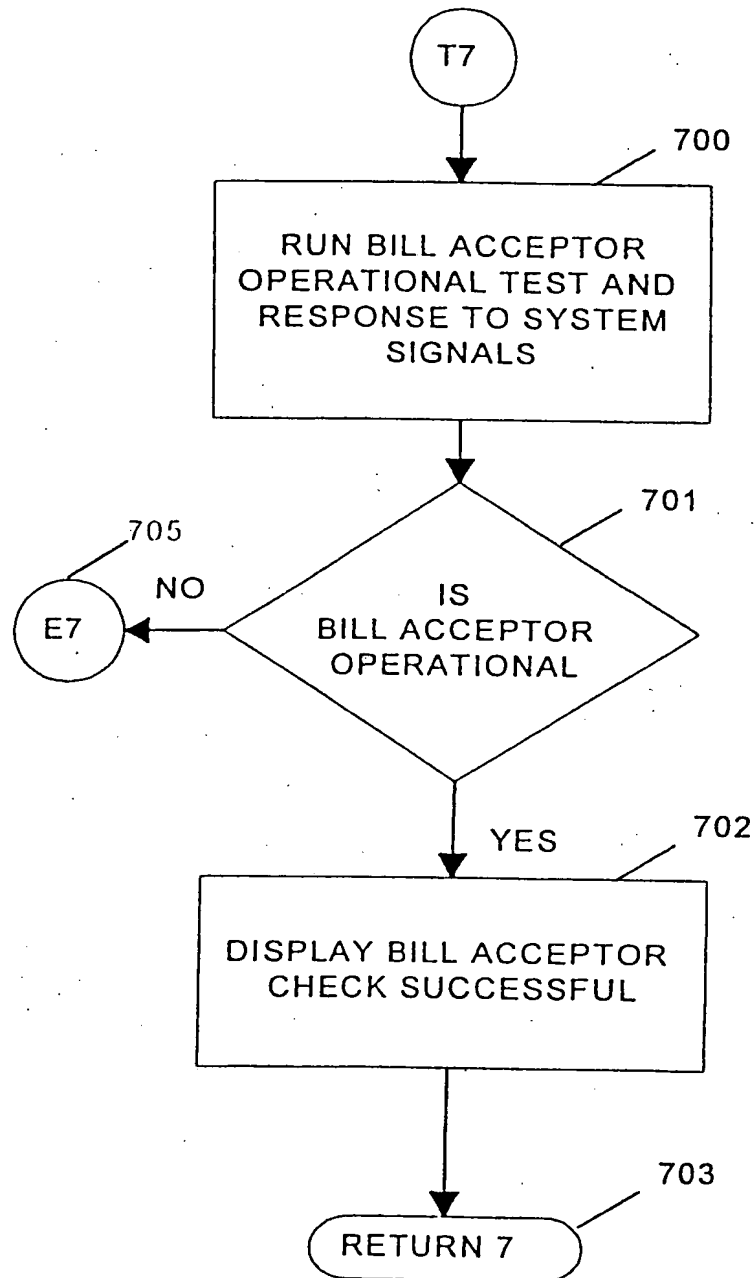


FIGURE 3M

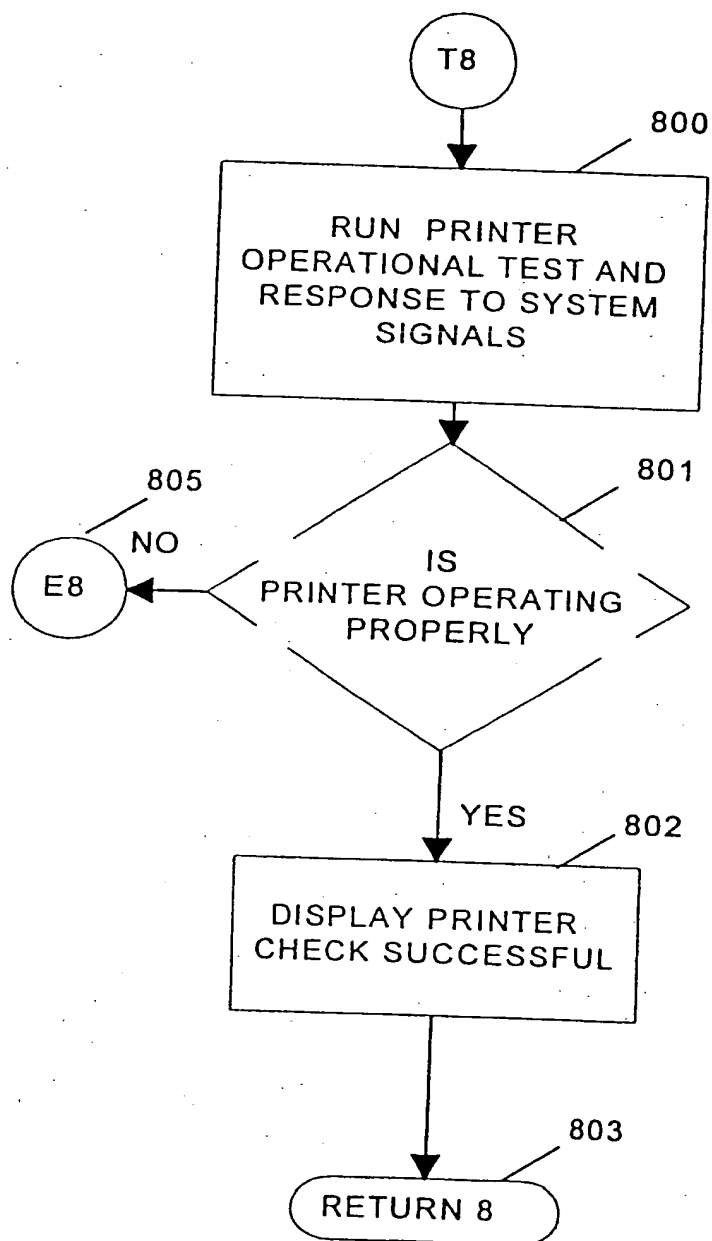


FIGURE 3N.

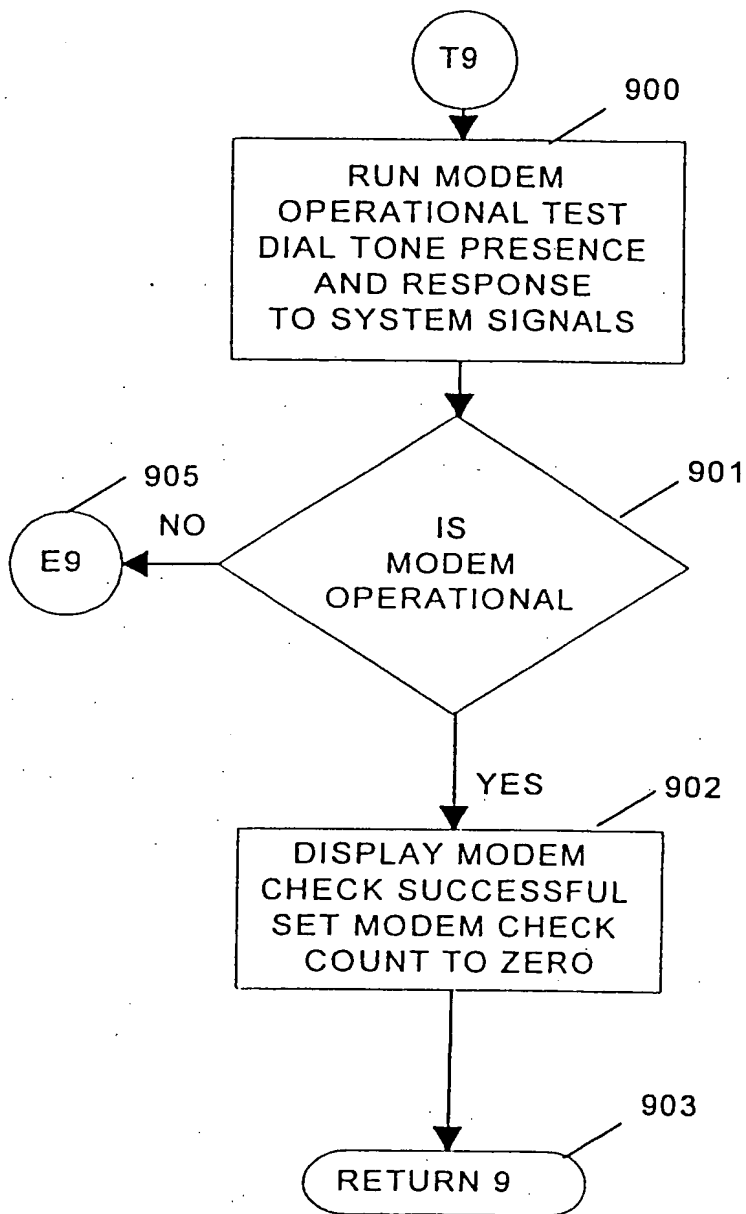


FIGURE 30

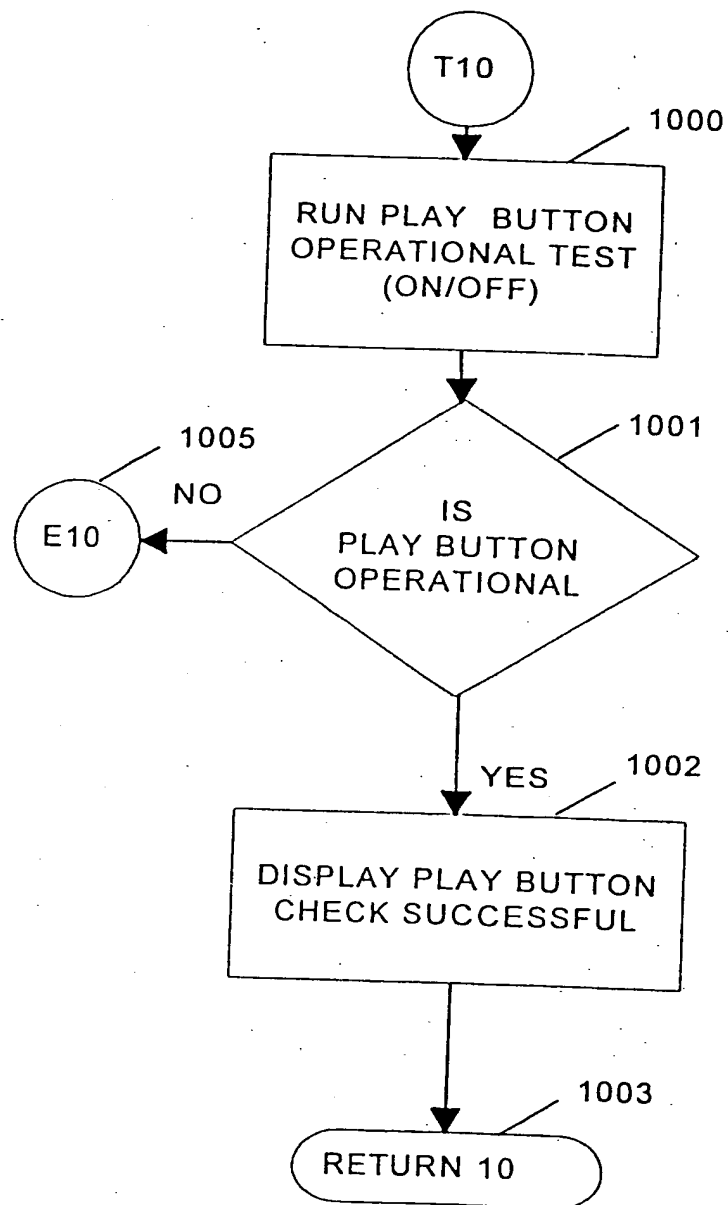


FIGURE 3P

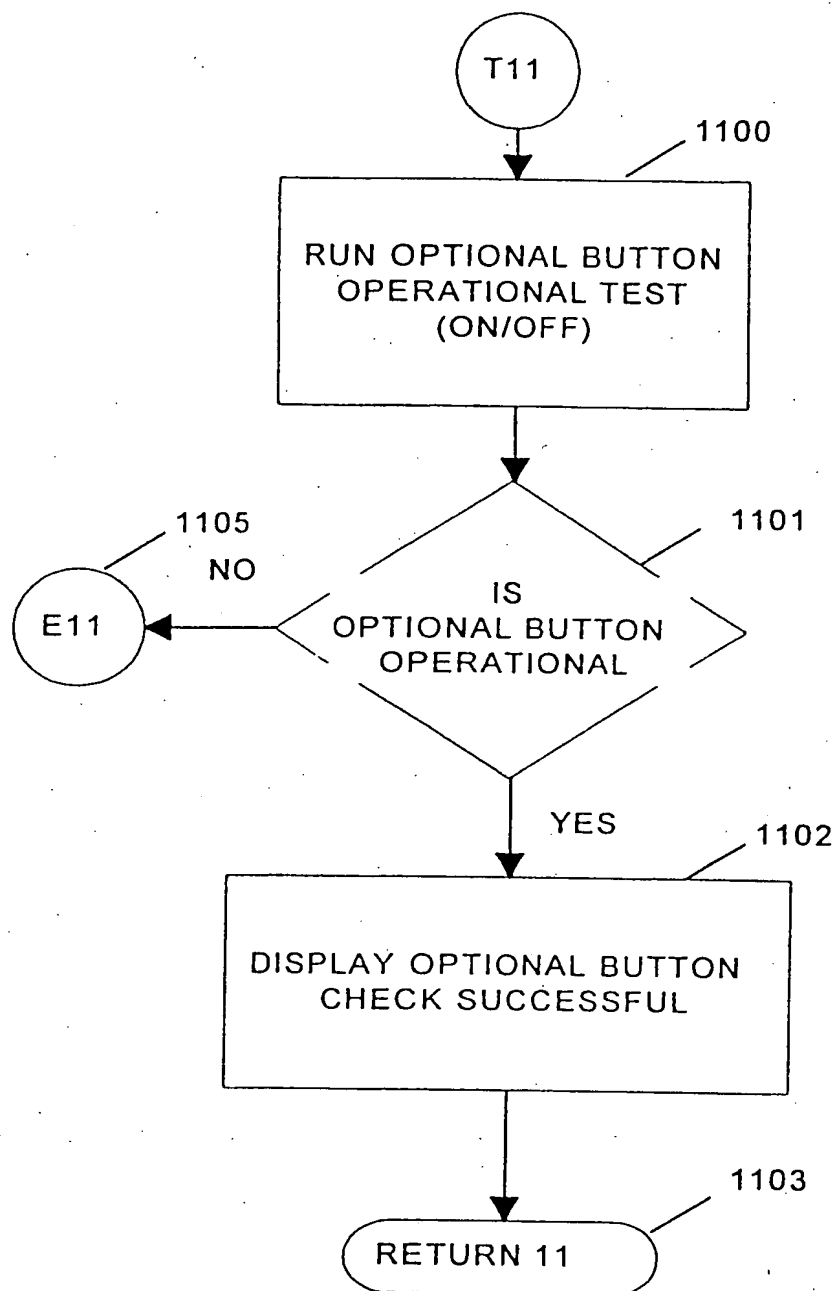


FIGURE 3Q

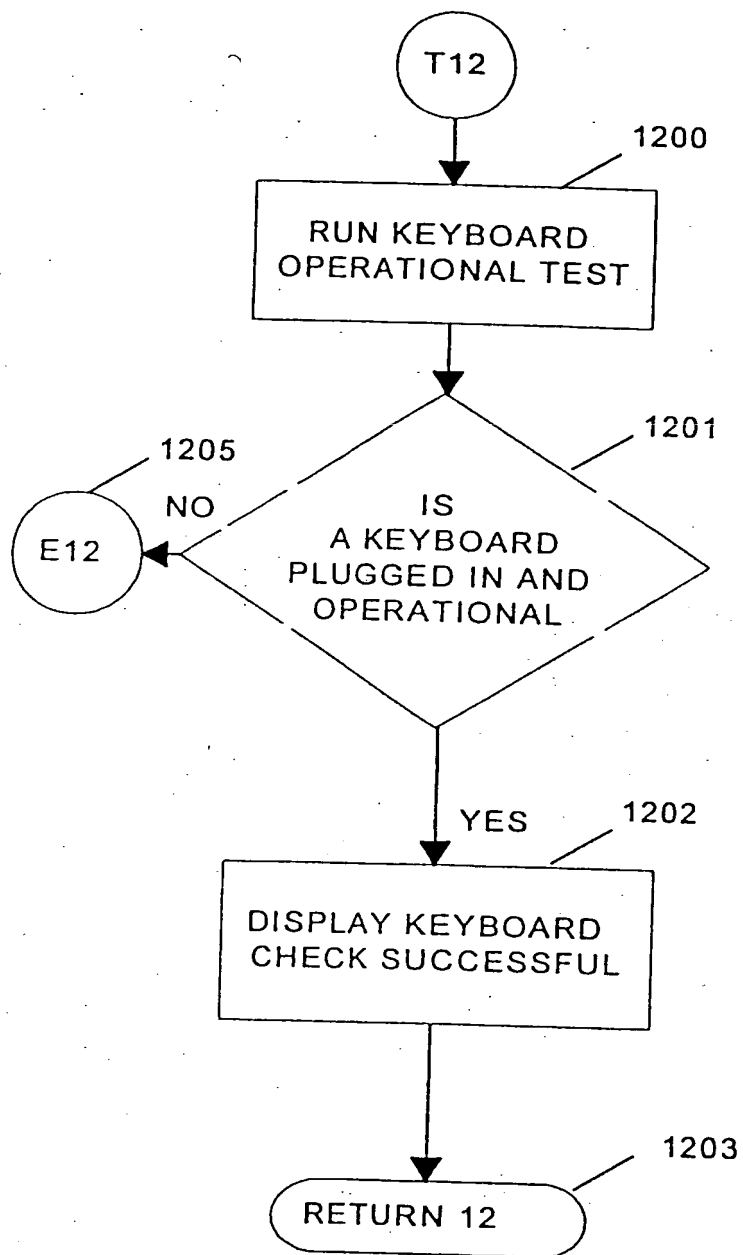


FIGURE 3R

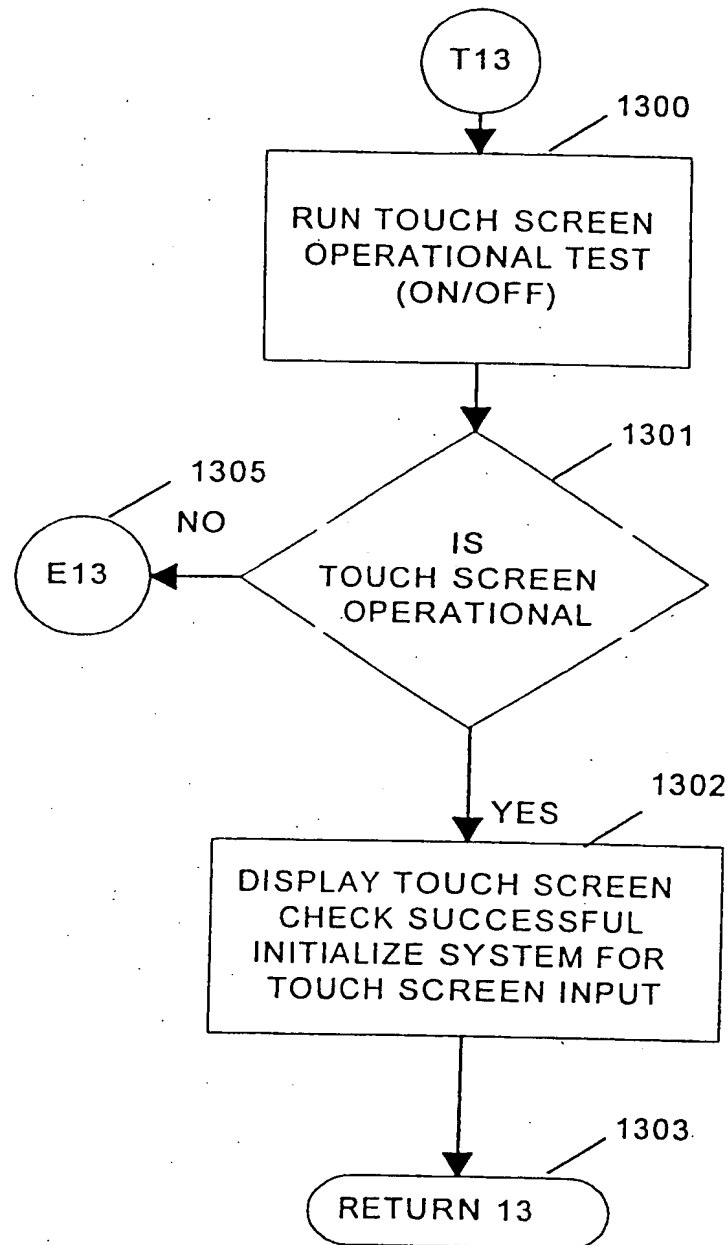


FIGURE 3S

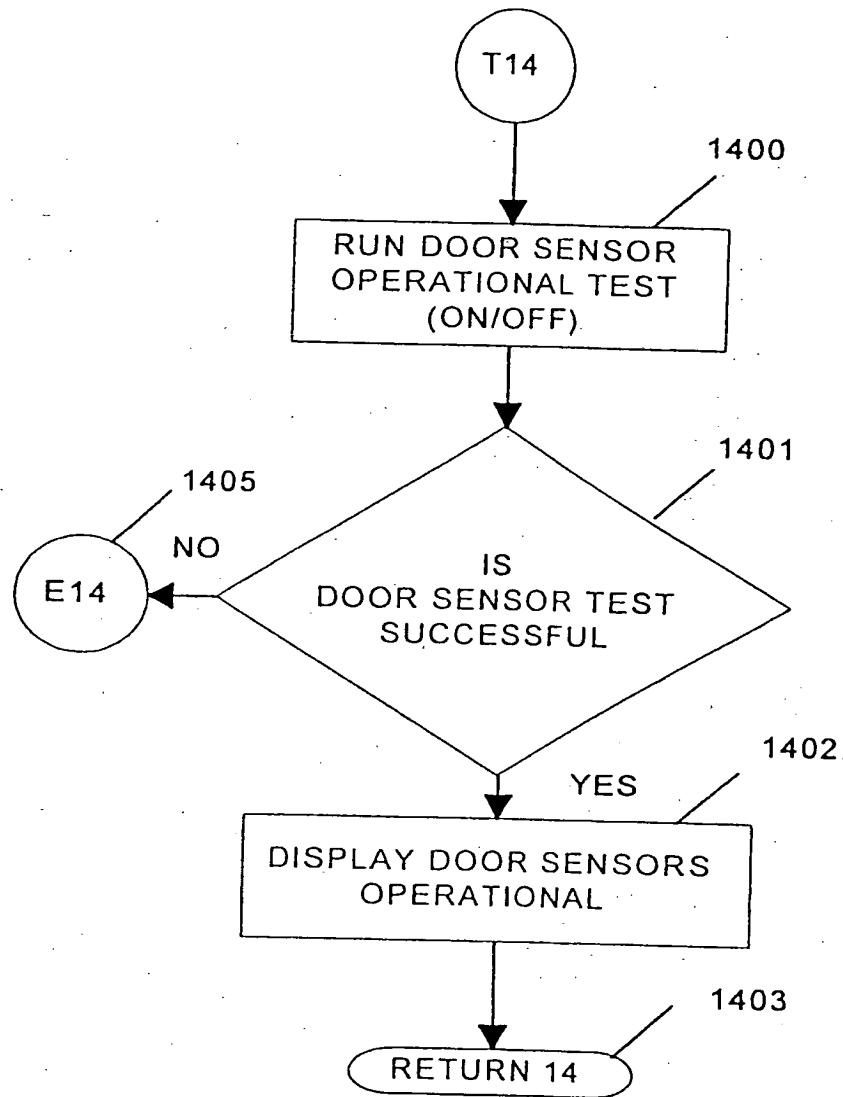


FIGURE 3T

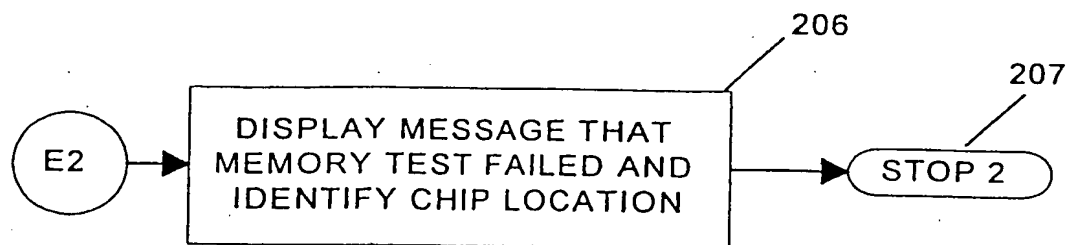


FIGURE 3U

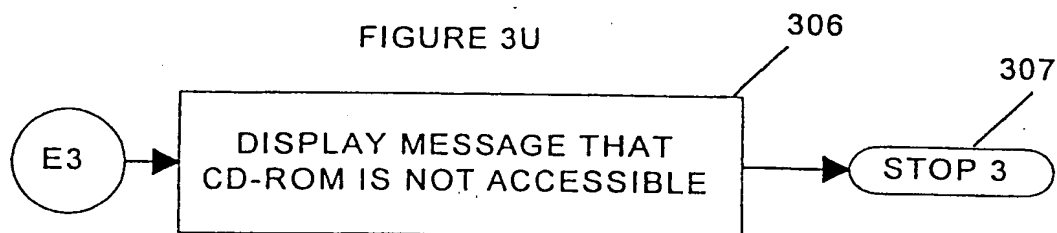


FIGURE 3V

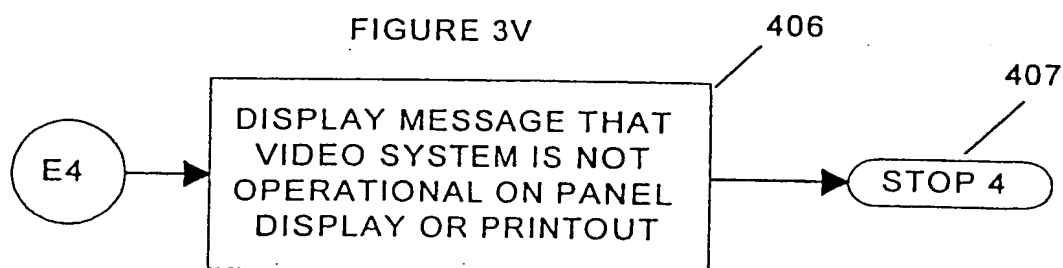


FIGURE 3W

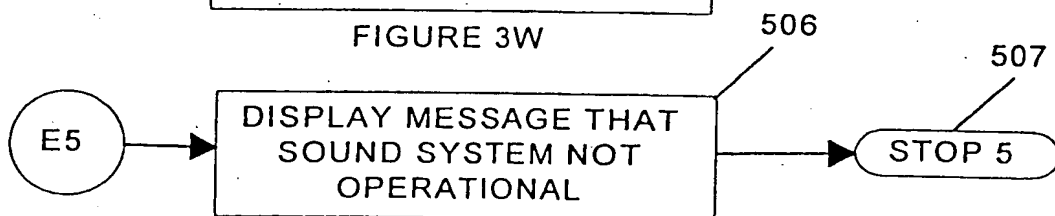


FIGURE 3X

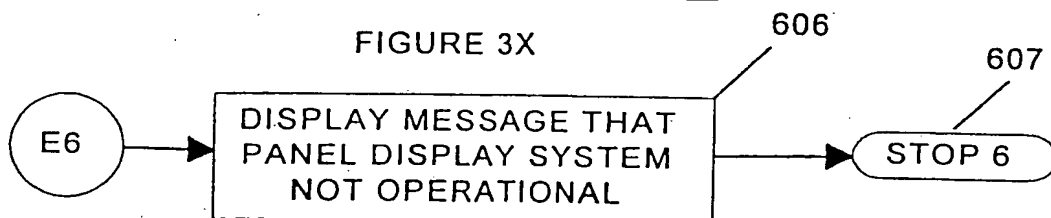


FIGURE 3Y

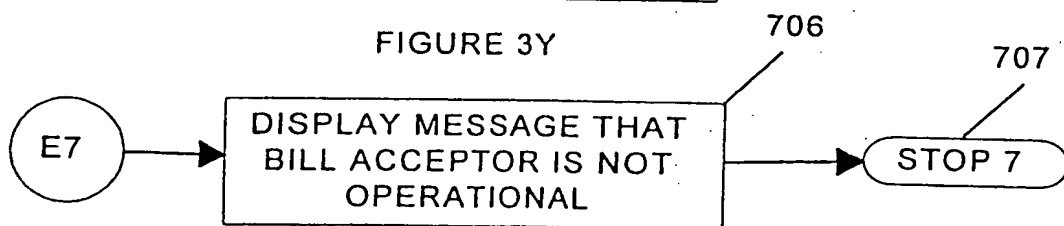


FIGURE 3Z

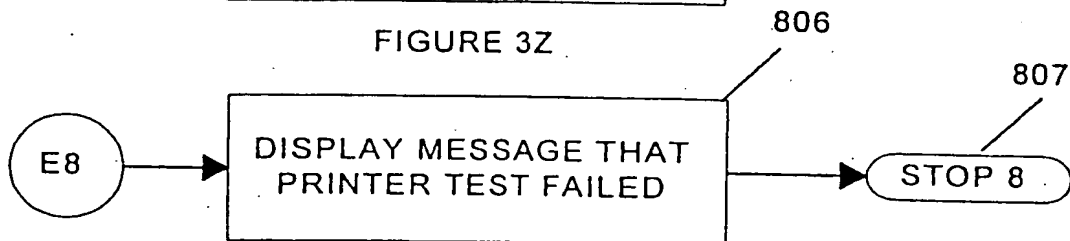


FIGURE 3AA

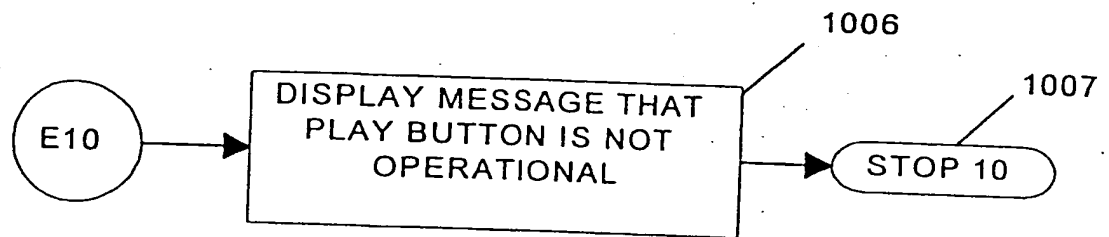


FIGURE 3AB

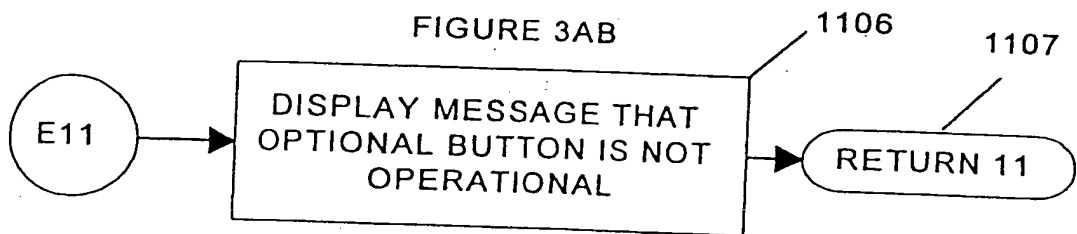


FIGURE 3AC

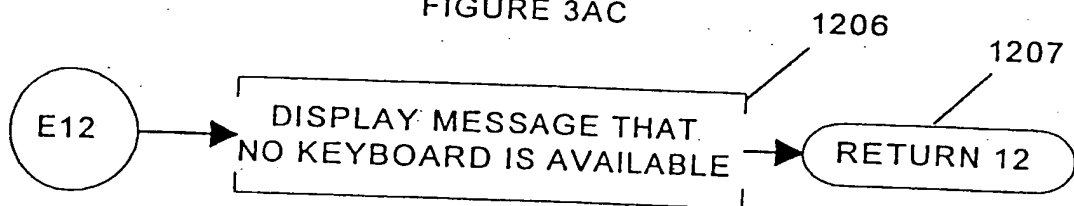


FIGURE 3AD

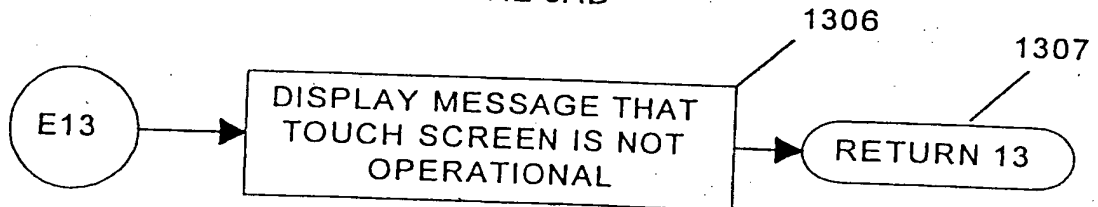


FIGURE 3AE

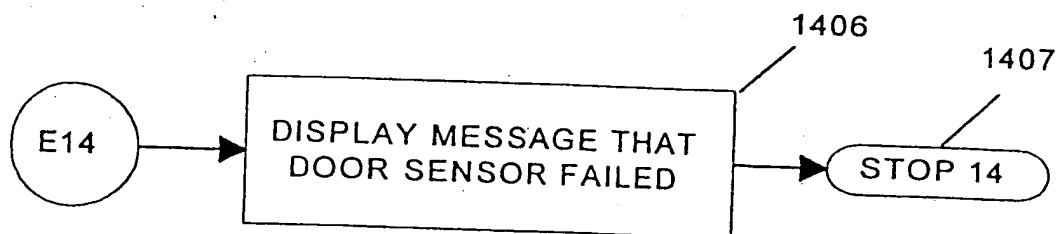


FIGURE 3AF

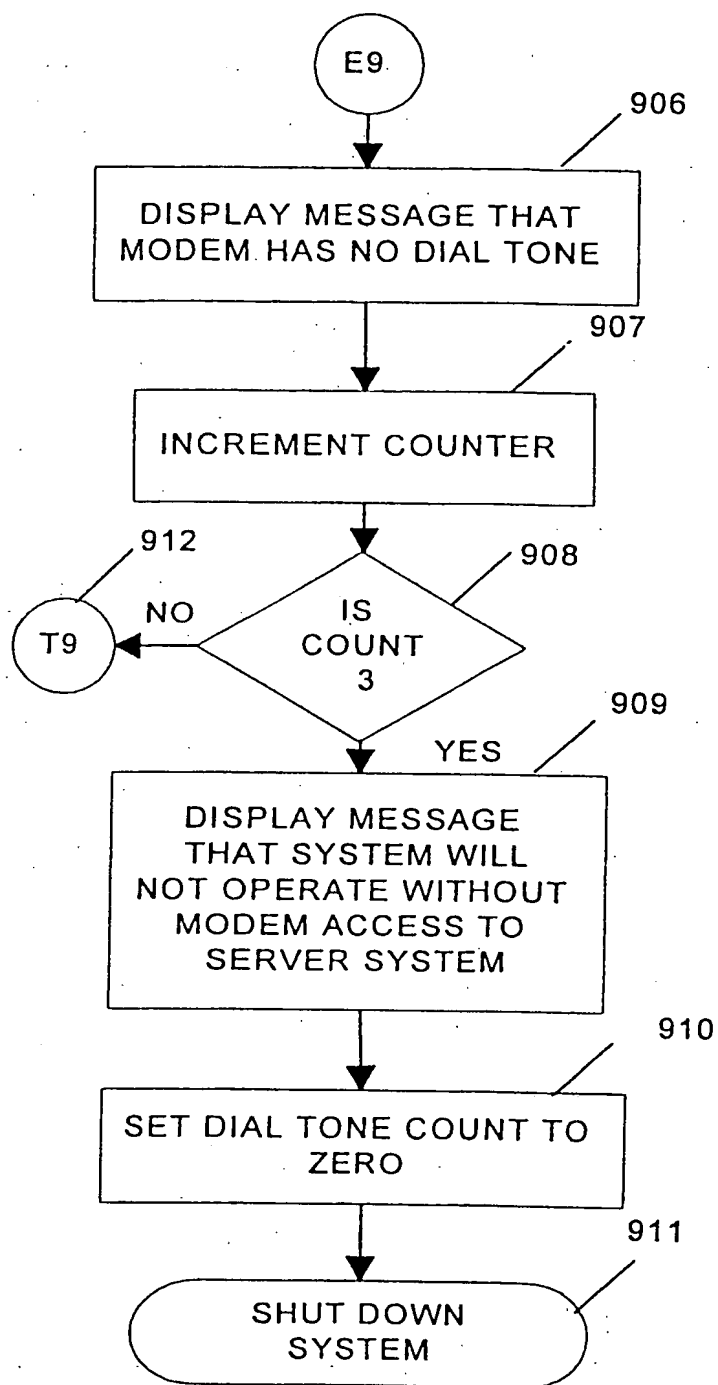


FIGURE 3AG

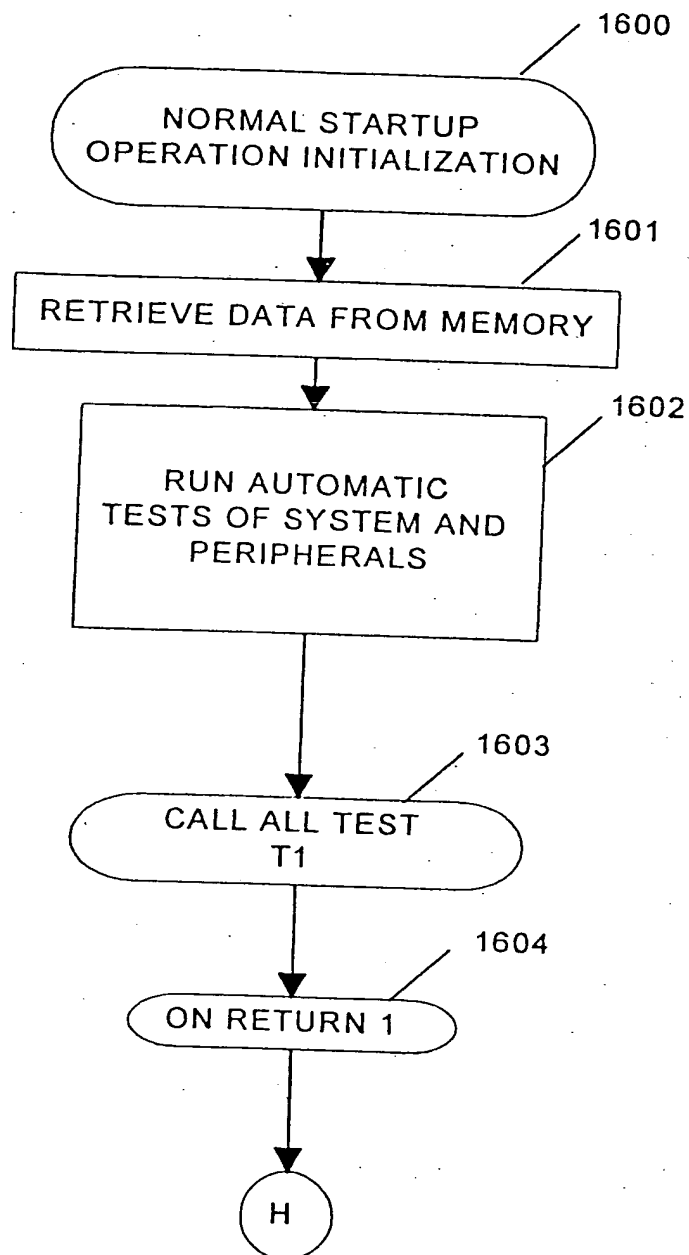


FIGURE 3AH.

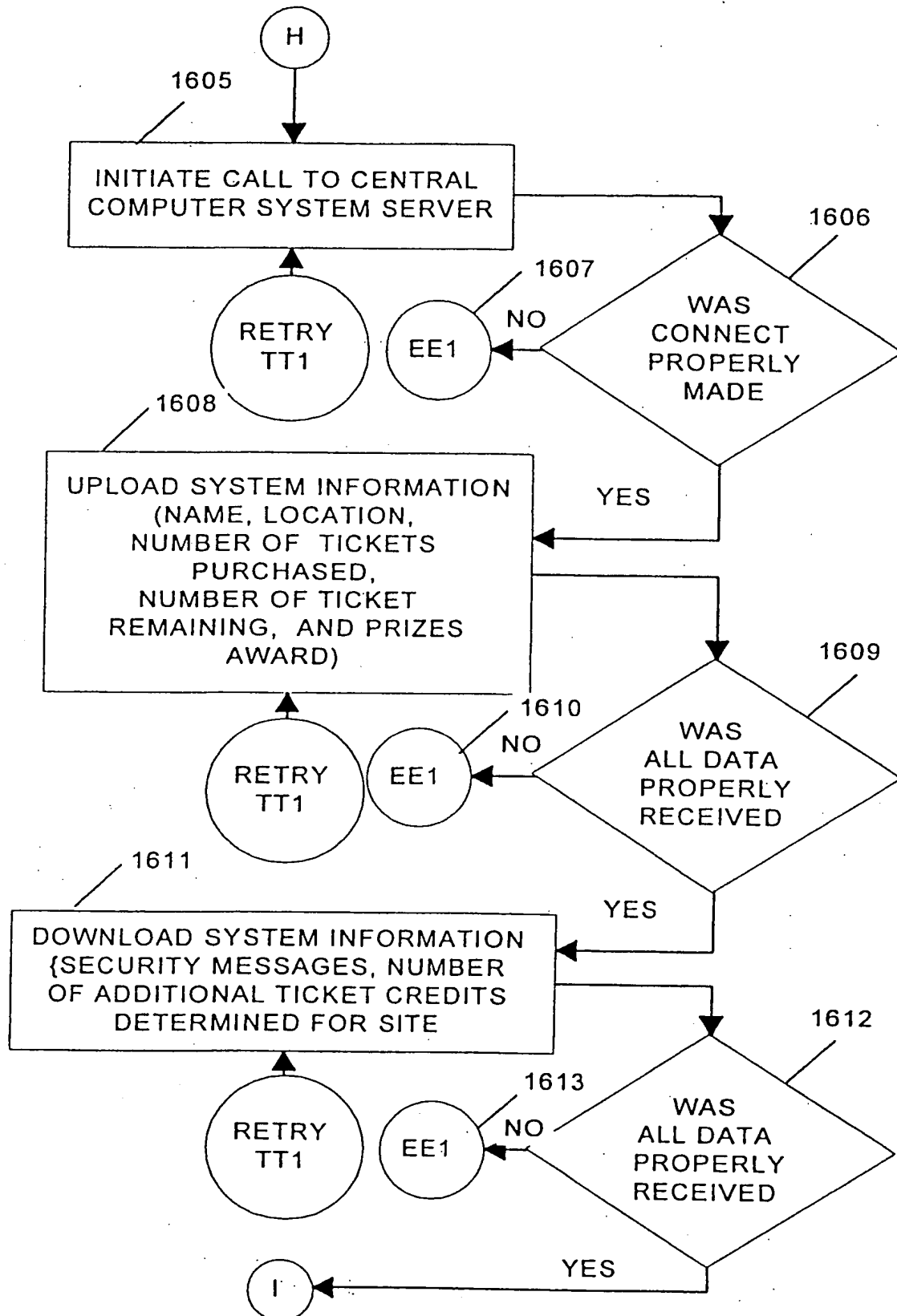


FIGURE 3AI

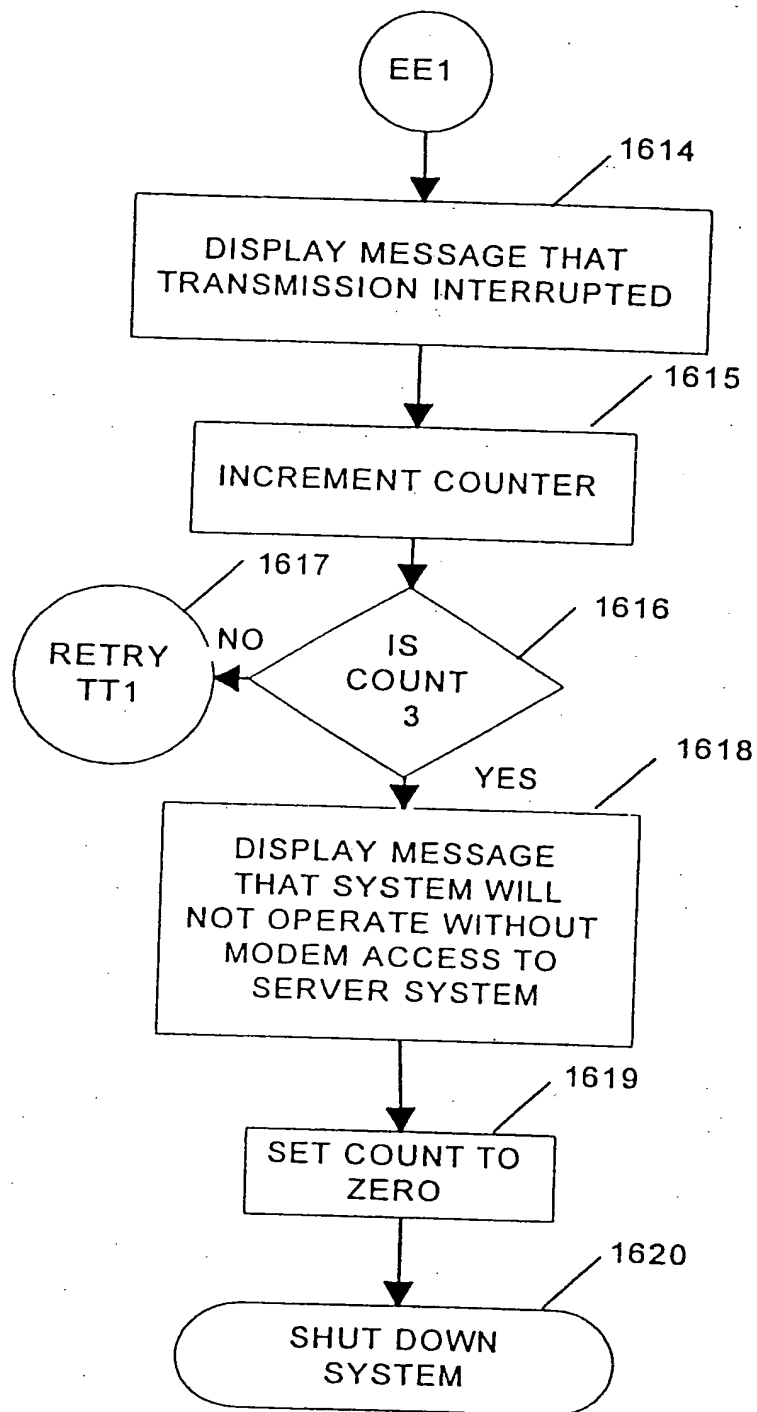


FIGURE 3AJ

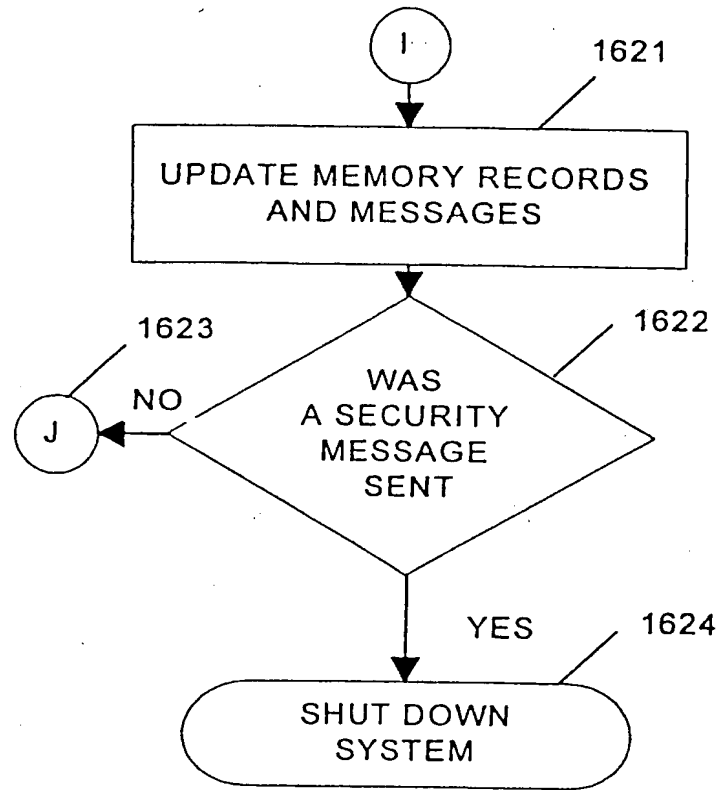


FIGURE 3AK

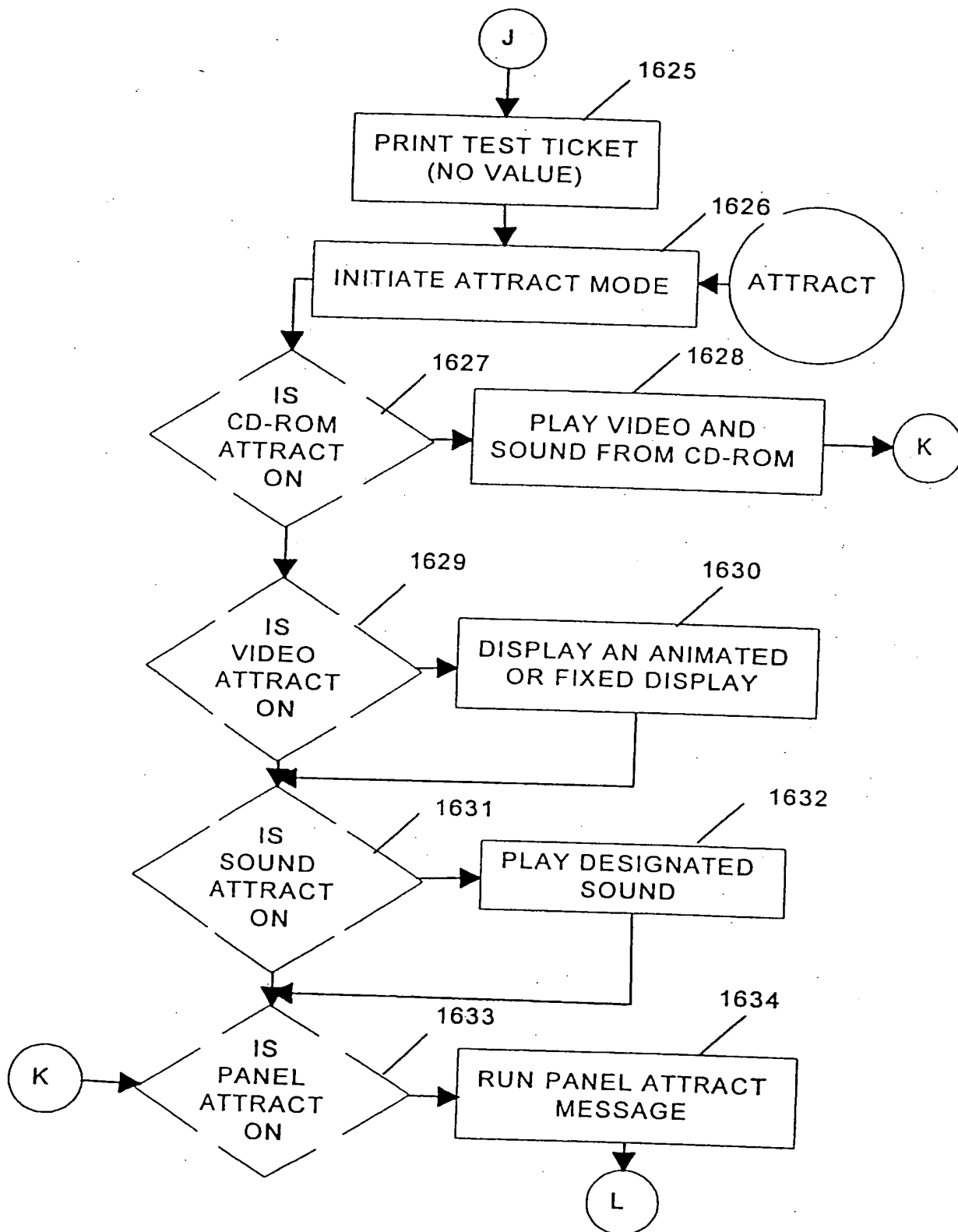


FIGURE 3AL

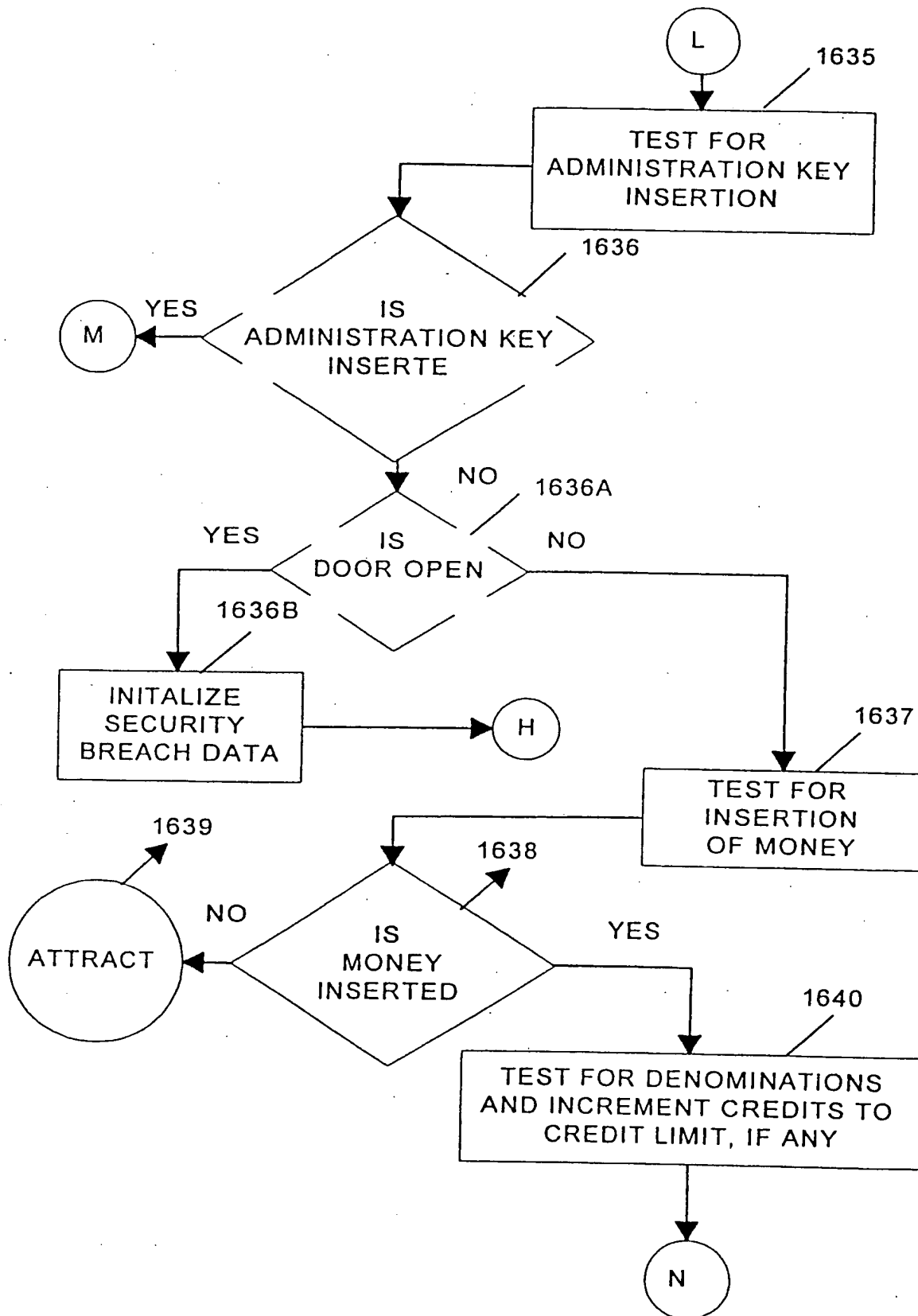


FIGURE 3AM

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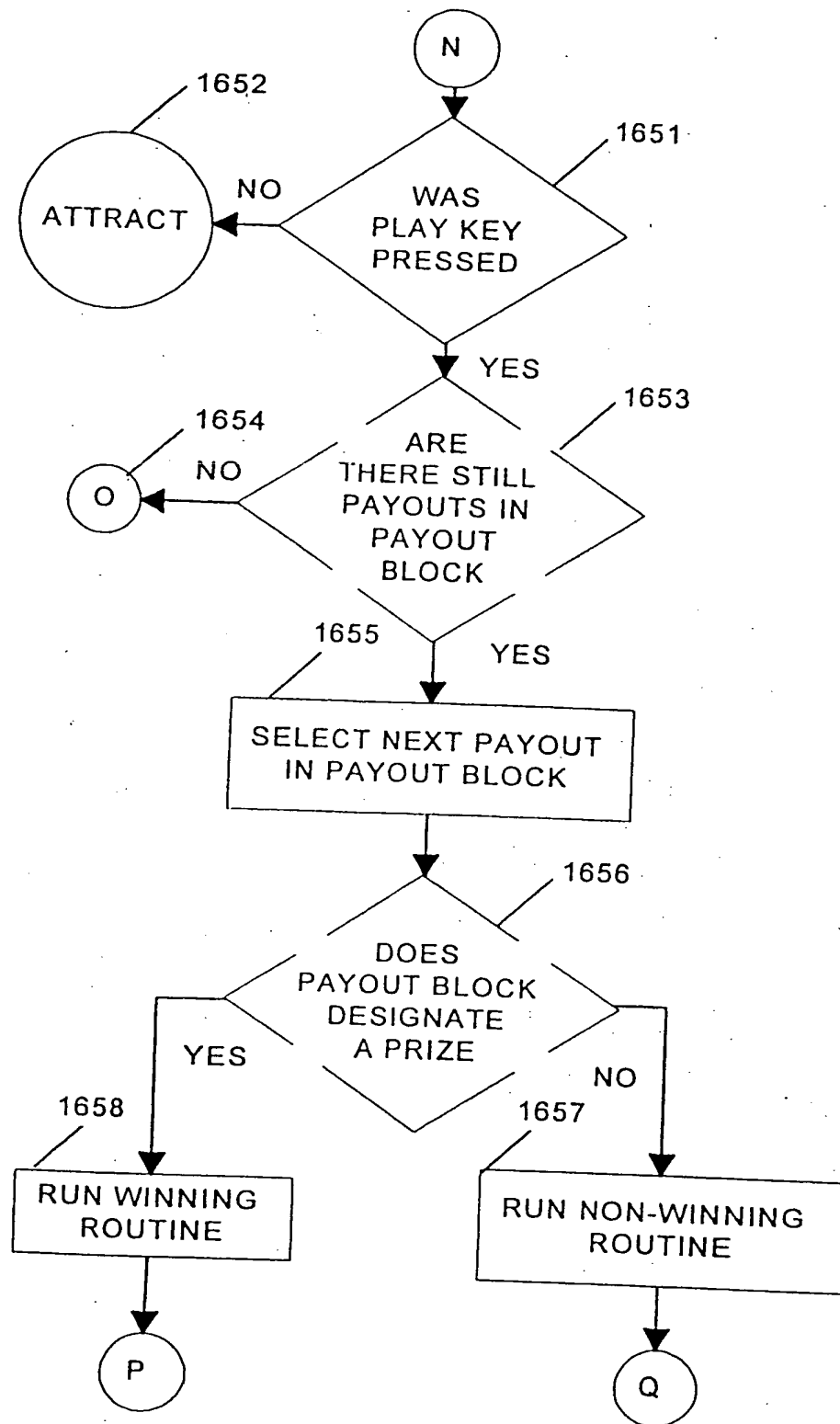


FIGURE 3AN

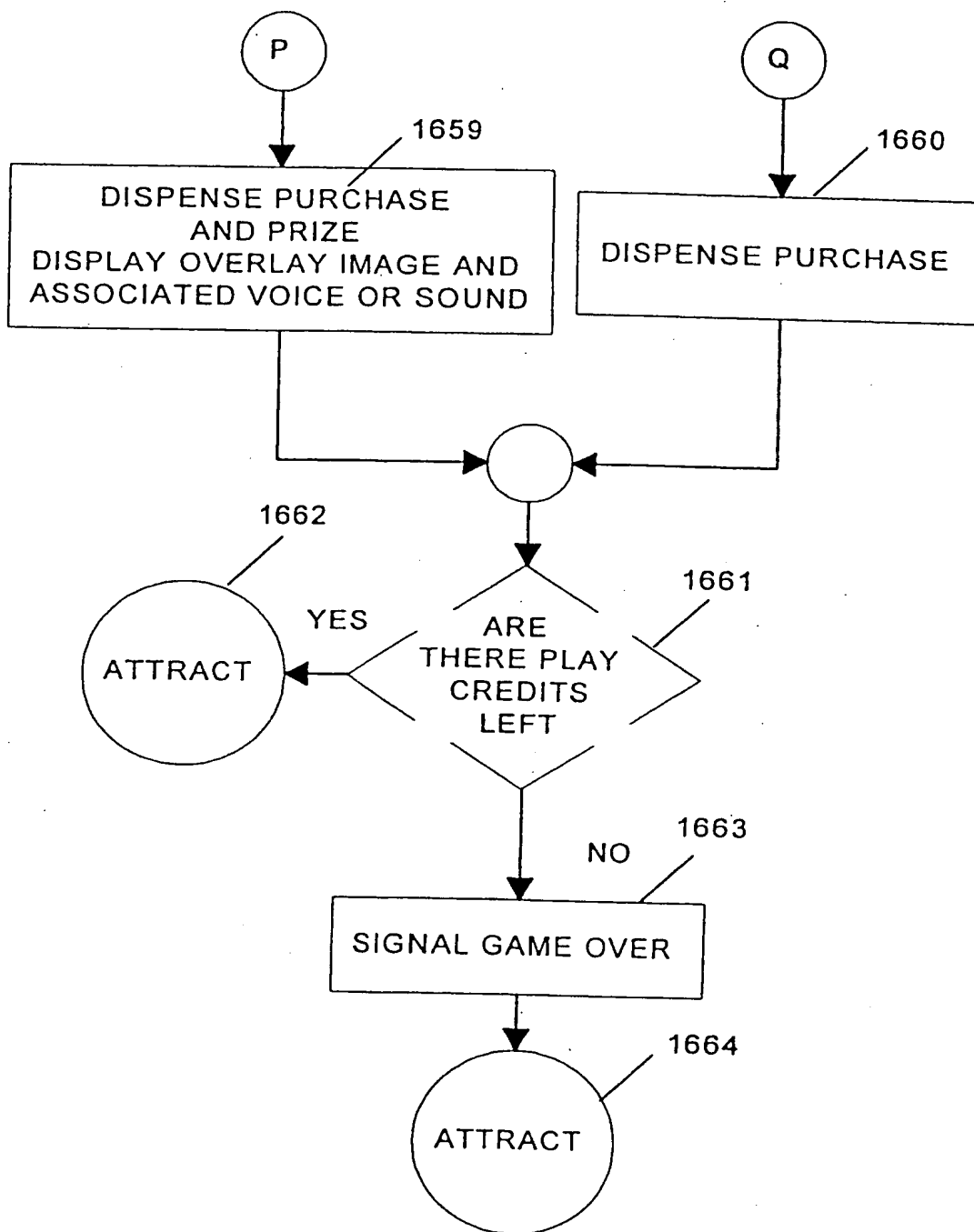


FIGURE 3AO

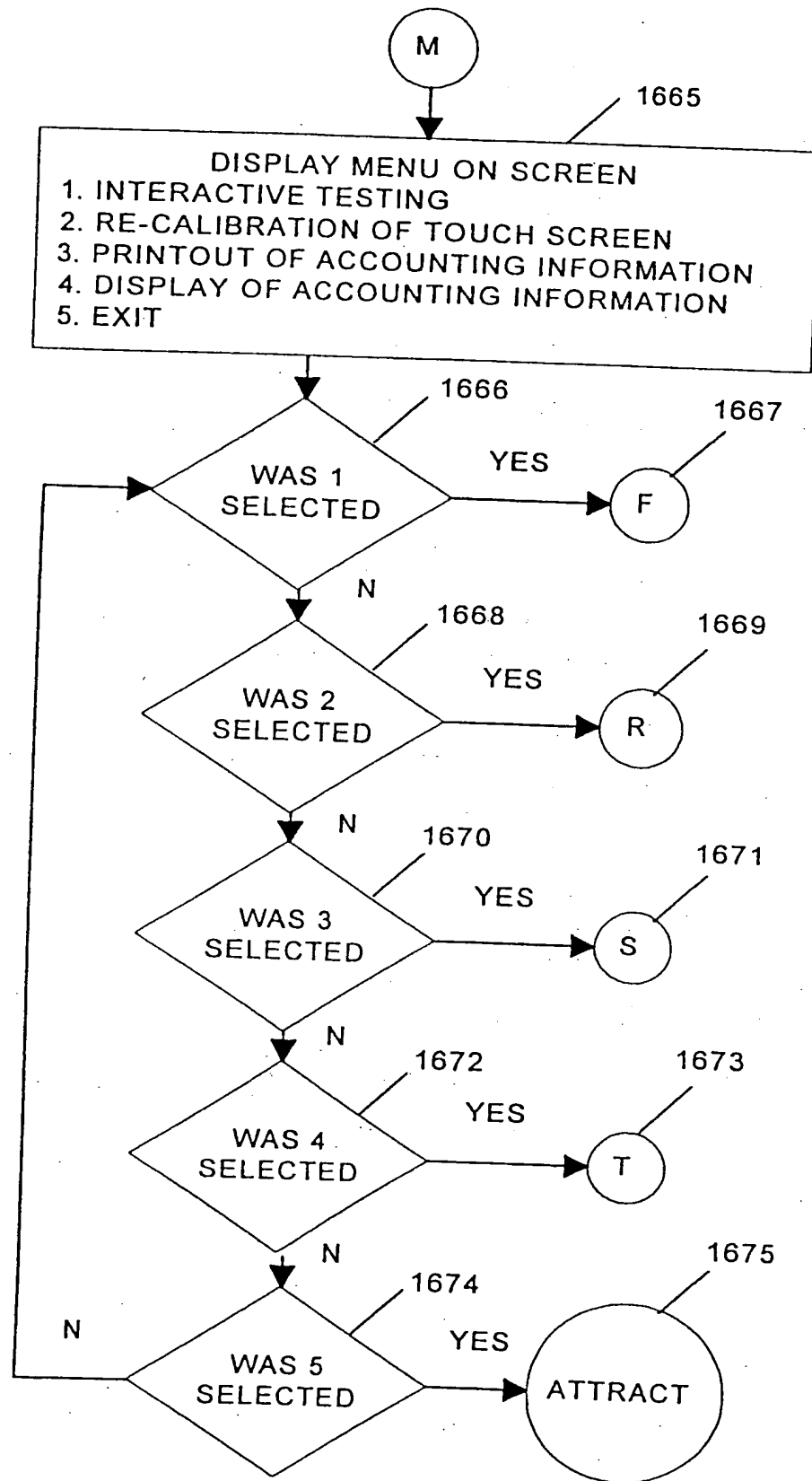


FIGURE 3AP

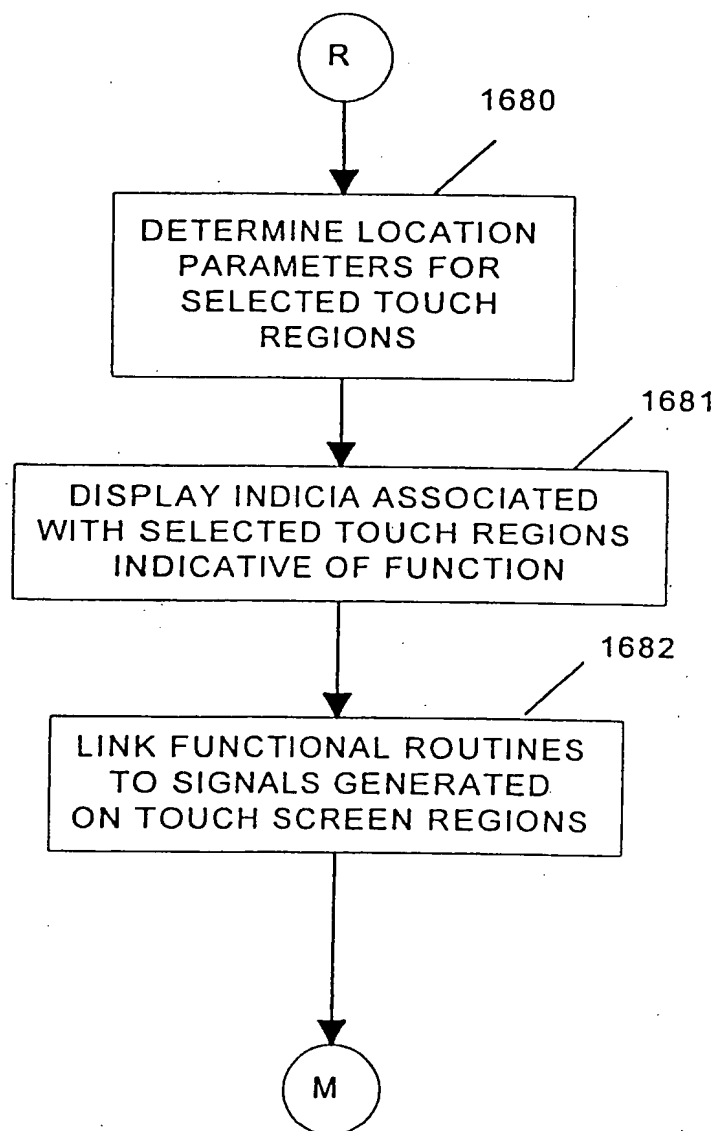


FIGURE 3AQ

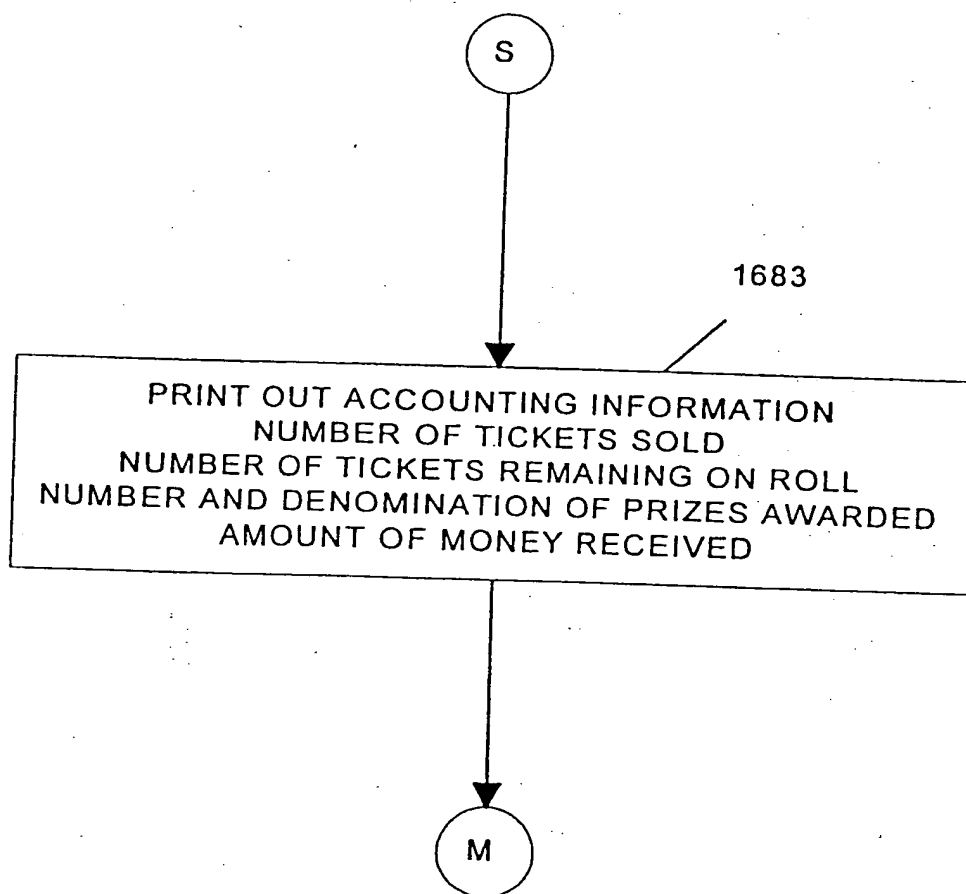


FIGURE 3AR

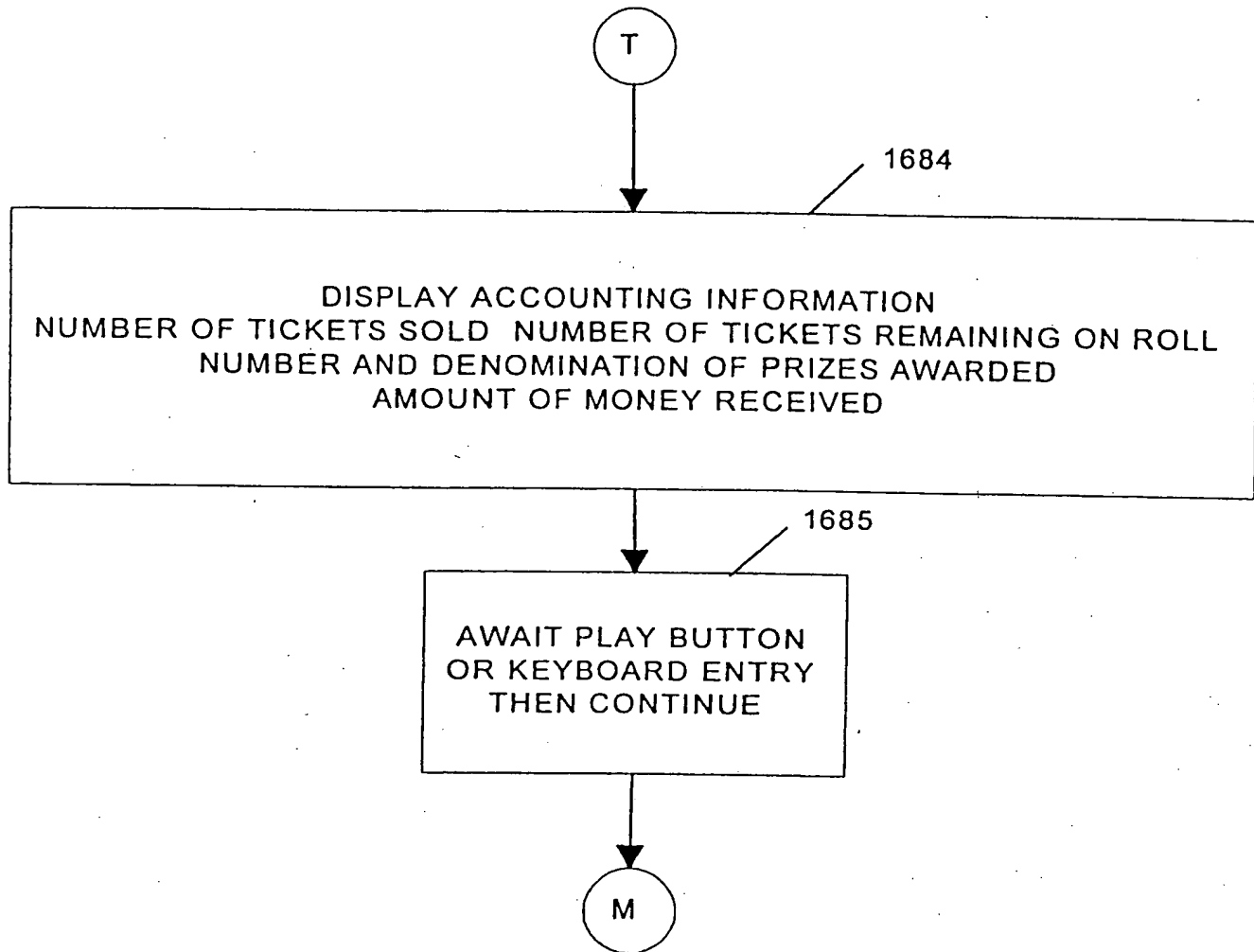


FIGURE 3AS

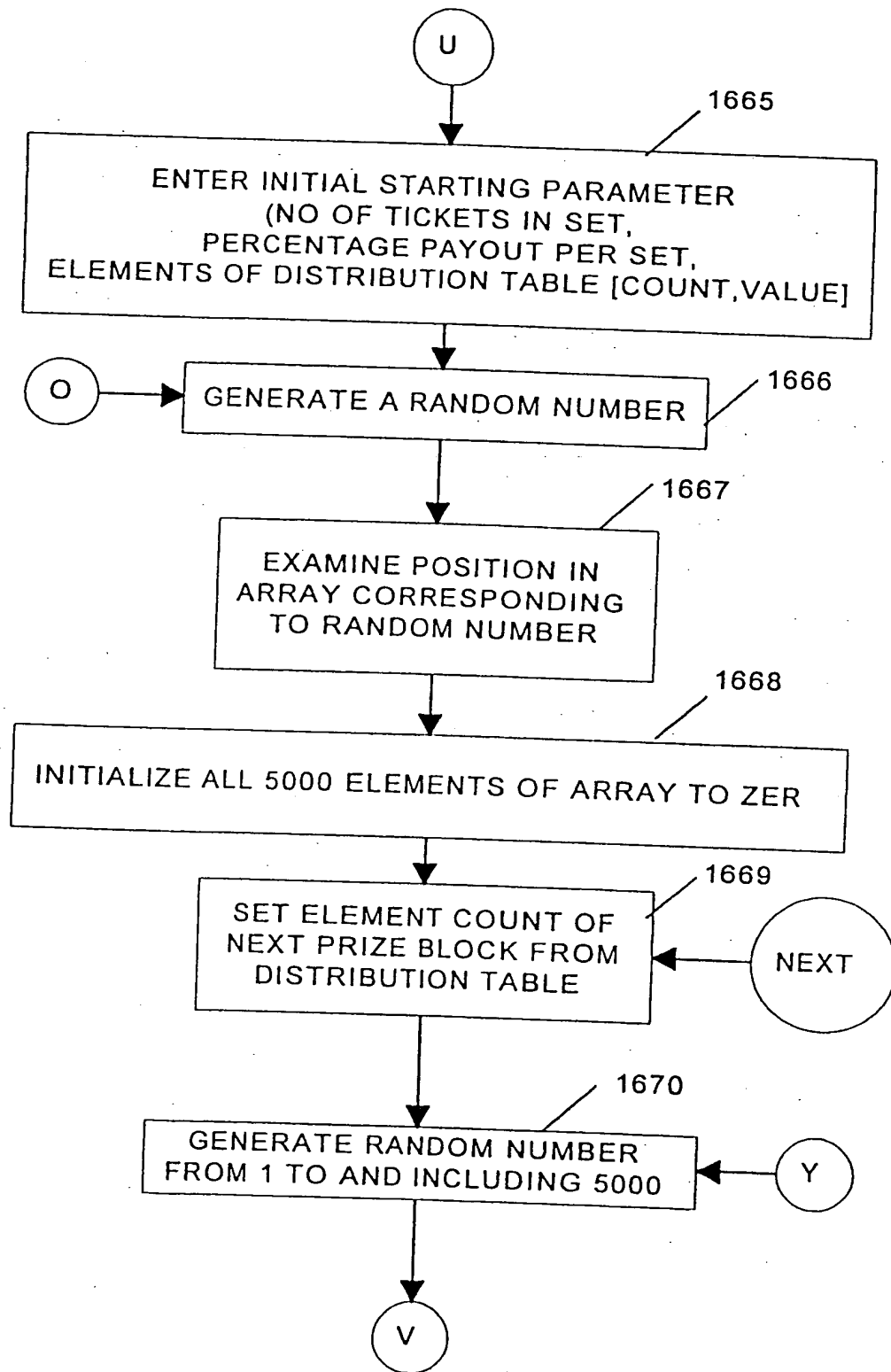


FIGURE 3AT

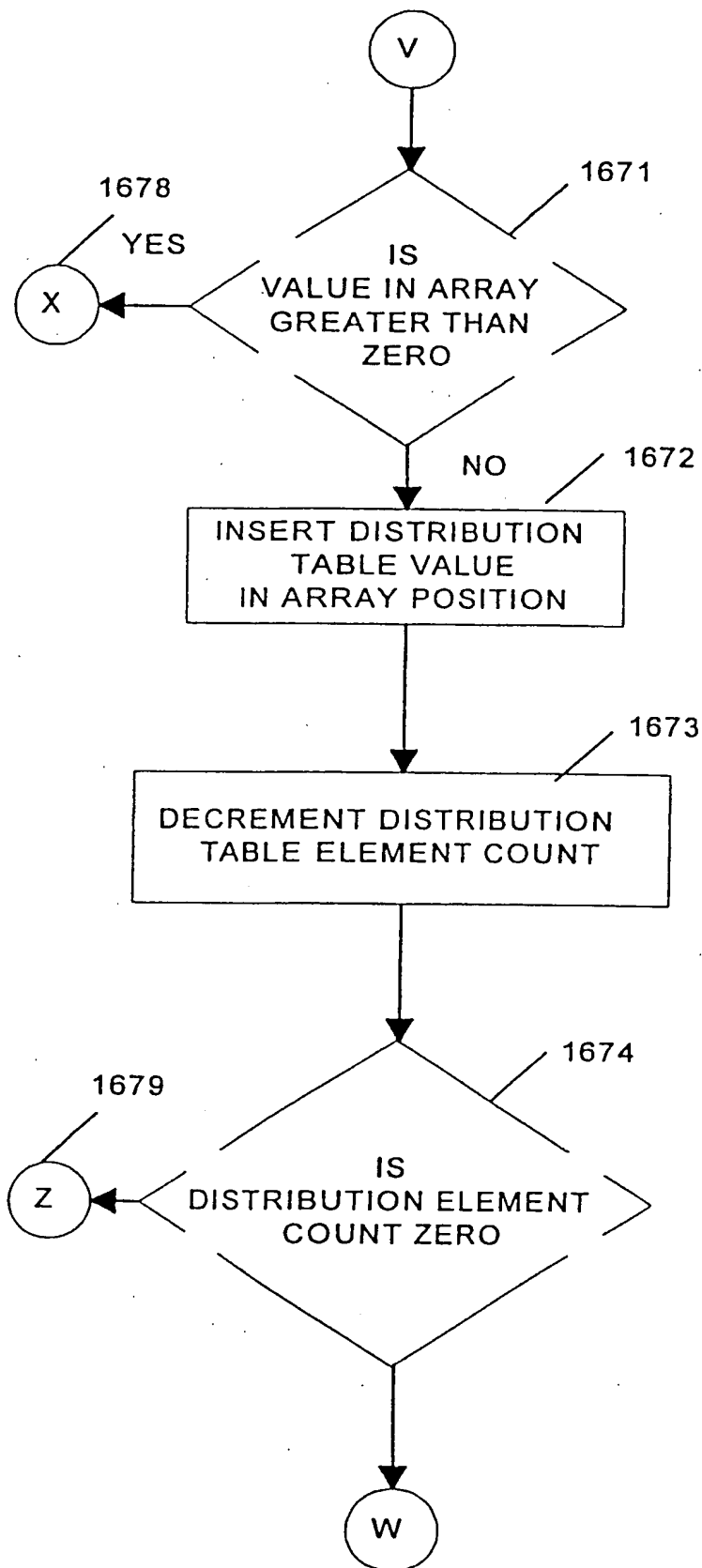


FIGURE 3AU

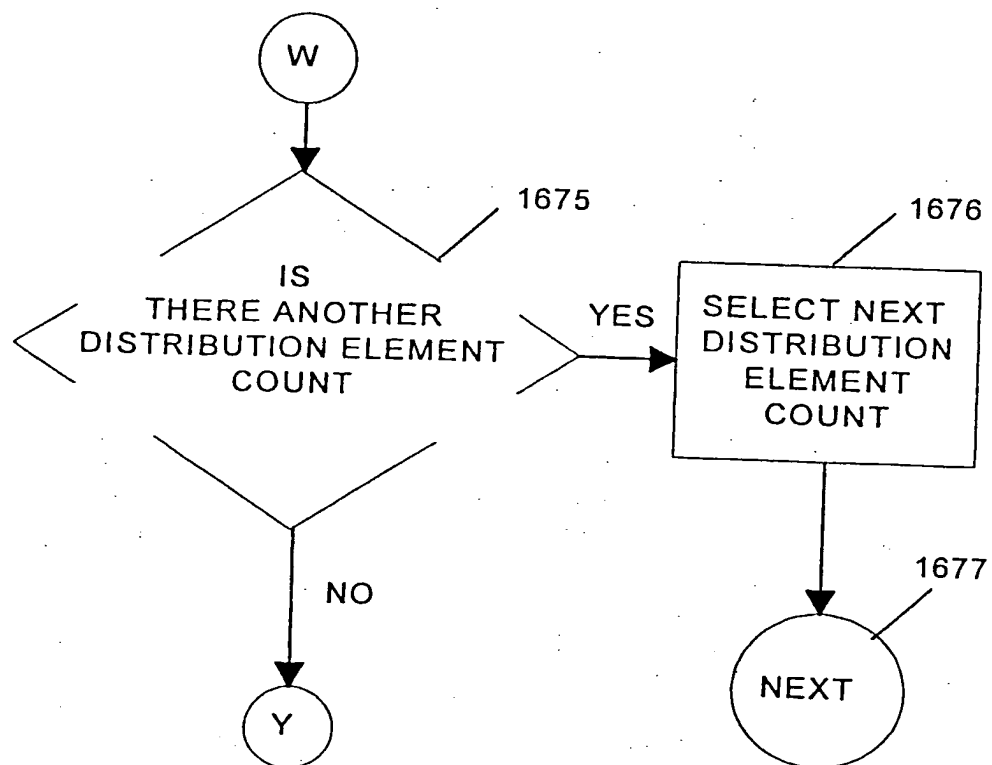


FIGURE 3AV

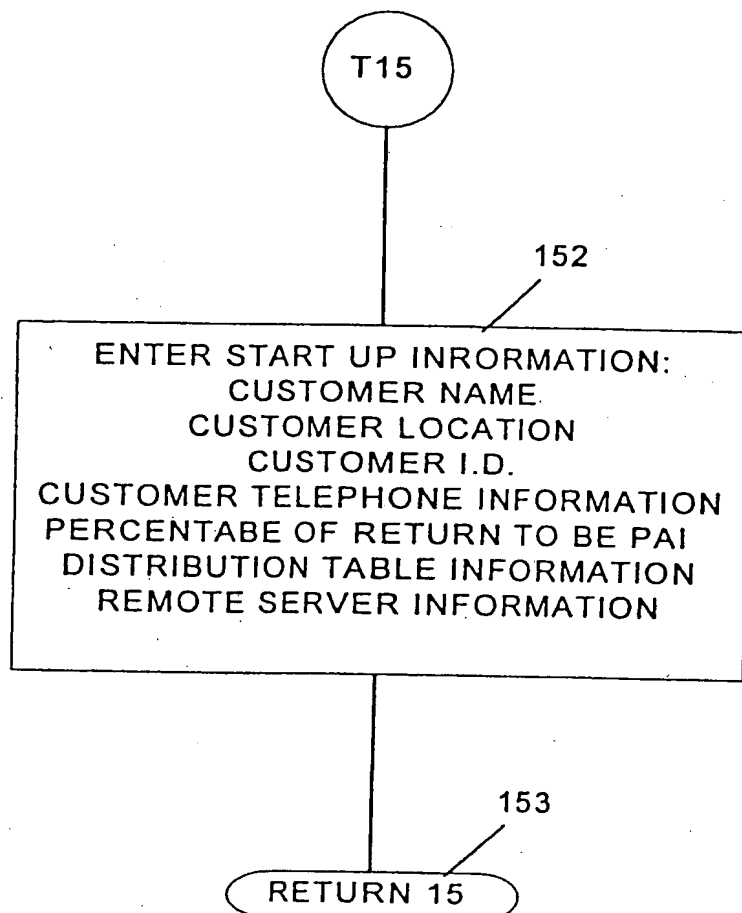


FIGURE 3AW

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